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Safety for Gas Pipelines, page 207

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MARGINAL NOTES

The ABC Conference—

The American-British-Canadian Conference on unification of standards was held this year in April. The official report is still being edited and will be published later in the year. In the meantime, THE MAGAZINE OF STANDARDS is planning to bring you a preliminary report of the discussions that took place. The "highlights" of the Conference will be published in the August issue.

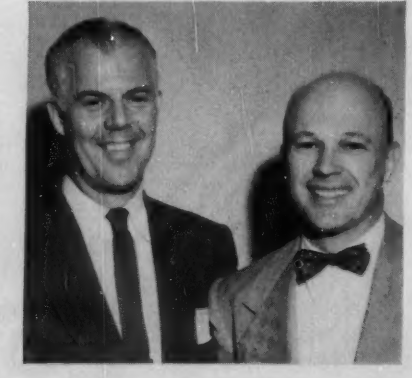
The National Bureau of Standards and Industry—

With the National Bureau of Standards as co-sponsor of the National Conference on Standards this year, it is especially appropriate to present in these pages a story about how the Bureau serves industry. The article by Arthur C. Ruge, page 210, describes one of the many examples of how industry can make use of the Bureau's services to keep its measuring and weighing equipment accurate.

The Company Member Conference

The Company Member Conference is the one organized group in the American Standards Association especially designed for exchange of ideas among standards men of company members. Every company that is a member of ASA is invited to name a representative on the CMC. In addition to officially designated representatives, the CMC also welcomes participation by other indi-

M. C. Olsen and Floyd O. Smeltz



viduals in these companies who are interested in standards.

CMC holds two meetings a year, one in the spring, and an annual meeting at the National Conference on Standards in the fall. CMC usually sponsors one of the sessions of the National Conference.

Action has been taken on a number of standards at the special request of CMC members.

The 1955 Spring Meeting at Milwaukee was one of the largest held by the Company Member Conference so far. It was the fourth in the Middle West, the others having been in Chicago and Minneapolis.

Credit goes to Floyd O. Smeltz, Allis-Chalmers Manufacturing Company, Milwaukee, for the successful arrangements for the Milwaukee meeting (see picture).

The Front Cover

Natural gas accounted for less than 4 percent of this country's energy 35 years ago. Today it supplies over one-quarter of the total energy requirements. More than 400,000 miles of pipelines make the fuel available to millions of homes and thousands of industries throughout the country. Here is the start of one of these cross-country pipelines as it is being laid in West Texas.

To make pipeline transportation of gas as safe as possible, uncounted hours of work have gone into developing minimum safety requirements. The results of this comparatively little-known work are described in this issue by one of the men most active in bringing it to completion. See "Safety for Gas Pipelines" by Lester W. Benoit, page 207.

This Month's Standards Personality

George N. Thompson, known nationally and internationally as a leading authority on building construction, has given more than 30 years service to the National Bureau of Standards. During much of that time, he has been one of the prime movers on building standards and codes in this country. Mr Thompson retired June 30.

Mr Thompson first went to Washington, in 1923, as a member of the staff of the Committee on Seasonal Operation in the Construction Industries. The committee was established by Herbert Hoover. In 1924 he entered the National Bureau of Standards as staff member of the Division of Building and Housing. He has headed the Bureau's building codes and standards work since 1926, first as chief of the Building Codes Section of the Division of Building and Housing, then with the added responsibility of Assistant Chief of the Division of Codes and Specifications. Later he became Chief of the Division, and in 1947 Chief of the newly formed Codes and Specifications Section and Assistant Chief of the Building Technology Division.

His service with the Bureau was broken once. On furlough in 1933-1934, he served as Associate Director of the Research on Slums and Housing Policy sponsored by the Phelps-Stokes Fund. As joint author, he prepared a two-volume report, *Slums and Housing,* on the survey he conducted of housing conditions in New York City. The report was published by Harvard University.

As vice-chairman of ASA's Building Code Correlating Committee for eight years and chairman for five years (1944 to 1949), Mr Thompson helped supervise ASA committees preparing national standards in the building code field. He has also been chairman of the ASA Sectional Committee on Building Code Requirements for Minimum Design Loads in Buildings since its inception in 1938.

He has been a member of the Joint Committee on Unification of Building Codes since its formation in 1948; a member of the Special Consultants Panel of the New York State Building Code Commission since it was formed in 1950; representative of NBS on the Uniform Plumbing Code Committee; and member of the Coordinating Committee for a National Plumbing Code.

Mr Thompson's ability to work with people and his sound judgment and administrative ability were called upon by many organizations. Typical of a few are the Interdepartmental Advisory Committee on Protection which he chairmaned in 1942, and which issued "Air Raid Protection for Federal Buildings and Their Contents"; his chairmanship of the American Society for Testing Materials Subcommittee on Standard Specifications for Fire Tests of Materials and Construction; his service as vice-chairman of the Federal Fire Council; and chairmanship of its Special Committee on Fire Resistance and Exits for New Buildings.

All who know George Thompson will agree with the citation presented with its Gold Medal by the U.S. Department of Commerce in 1953: "for rare and outstanding contributions in the development of performance and model building codes, in bringing scientific advances to the attention of writers of building codes, in reconciling conflicting points of view in the development of such codes, bringing to this nation higher standards of housing, safety, and uncounted savings by the elimination of unnecessary restriction."

Just before his retirement, Mr Thompson also received the Award of Merit of the American Society for Testing Materials "in recognition of distinguished service to the Society."

Some of the speakers at CMC's Milwaukee meeting—(Above) J. R. Walgren, Aluminum Company of America; Harry W. Howard, Shell Chemical Corporation; M. C. Olsen, CMC Chairman. (Below) Dale F. Engstrom, Cutler-Hammer, Inc; L. M. Dalcher, Fairbanks-Morse Company; A. R. Coleman, Western Electric Company.

THE COMPANY MEMBER CONFERENCE . . . MILWAUKEE

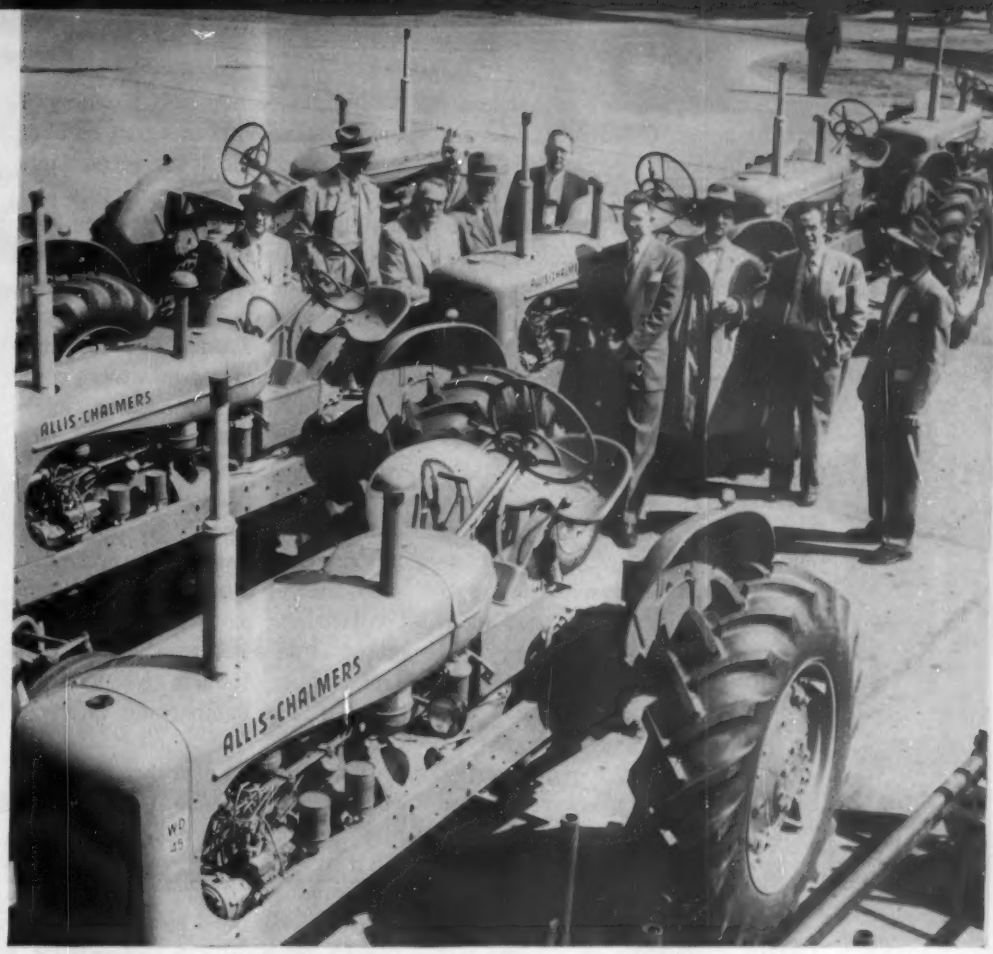
THE spring meeting of the Company Member Conference at Milwaukee, Wisconsin, May 16 and 17, was attended by some 140 members and their guests.

Local arrangements had been made by Floyd O. Smeltz of the Allis-Chalmers Manufacturing Company. M. C. Olsen, National Cash Register Company, chairman of the Conference, presided.

In addition to giving the visitors an opportunity to hear technical papers and to take part in discussions, the meeting included tours of several of the local manufacturing plants. Among these were the Allis-Chalmers Manufacturing Company, the Chain Belt Company, the Miller Brewing Company, the Harnischfeger Corporation, the Kearney and Trecker Corporation—Special Machinery Division, and the A. O. Smith Corporation.

J. R. Walgren, chairman of a subcommittee on marking of metals for identification, reported that his subcommittee is now organized and ready to start work. Its members include representatives of the Air Force, Department of Defense, National Bureau of Standards, American Iron and Steel Institute, Aluminum Association of America, Copper and Brass Research Association, American Society for Testing Materials, Society of Automotive Engineers, National Association of Purchasing Agents, and the ASA Chemical Industry Advisory Board.

He reported that the Government is considering three separate proposed standards on identification of metals. One of these, on aluminum, magnesium, and titanium, is under discussion with the Aluminum Association of America. It is in accordance with practices now followed in that industry. A second, on copper and brass, is being discussed with the Copper and Brass Research Association. The third, on steel, has been taken up with the American Iron and Steel Institute. Mr Walgren plans to report more fully before the Fall meeting of the Conference in Washington. This is the Annual Meeting of the Conference which is being held in conjunction with the Sixth National Conference on Standards at Washington, D.C., October 24, 25, and 26.



CMC members visit Allis-Chalmers—one of the plant tours at Milwaukee

Following are excerpts and summaries of the papers presented at the Conference.

Design Tolerances and Statistical Quality Control. *Professor Irving W. Burr, Purdue University.*

Lack of full cooperation between engineering and production today costs possibly billions of dollars annually. By using statistical quality control, the relationship can be put on a sound and factual basis.

The control chart is uniquely adapted to getting the maximum quality performance out of a process or machine. It helps tell at what point a process went sour, where to look for the cause, and when not to look.

Product will always vary somewhat. The control chart enables those in charge to tell precisely what spread of production is natural to the process or machine. There are three cases to consider: (*a*) the unhappy one in which the process is not capable of meeting specifications adequately; (*b*) the one in which the process gives results about the same as the specifications; (*c*) the case where the process results are narrower than the specified tolerance. In case (*a*), "fiddling" with the process will do no good because it is naturally too variable for the given specifications. There are a number of possibilities from which to choose: (1) make a fundamental change in the process; (2) sort the product 100 percent; (3) request a change of specifications; or (4) don't take the order! Possibilities (1) and (2) are expensive. It may be possible to use (3) because Engineering can now be sure that Production has gotten the true process capability out of the machine. Hence Engineering may be willing to relax specifications because of sound assurance that the relaxed specifications will be met. Control charts will make sure of this.

Case (*c*) is the happy situation in which the process is more than capable of meeting specifications. Here there are several possibilities: (1) Let the process level vary, as in tool wear, from a low level close to the

lower specification to a higher level near the upper. Control charts with slanting lines are effective here and may make it possible to obtain large savings; for example, in longer die life. (2) Run the process close to the specification and thereby save material or work. (3) Maintain looser and thereby cheaper control as in the use of so-called modified limits. (4) Narrow the specifications if it will put you in a stronger competitive position.

There has long been a strong tendency to set specifications too tight to be on the "safe side." Meanwhile Production says, "Why try to meet specs. They don't need them that close."

Just as soon as information is available on process capability and on how parts work together, it should be relayed to Engineering. By careful compromise between "what is needed" and "what can be produced" it may be possible to arrive at economically sound and sensible specifications; then work toward elimination of the mass of unrealistic specifications that are never fully met. Specifications that are too tight to be met and are never enforced tend to lead to shop disrespect for all specifications.

Some statistical laws can be used to advantage in setting tolerances for mating parts. Their application requires close cooperation between Engineering and Production, and use of control charts.

Decimal Dimensioning. *Charles M. Wright, Chrysler Corporation.* (*Paper presented by Roy Trowbridge, GM Engineering Standards, General Motors Corporation, in Mr Wright's absence.*)

This paper is being published in the August issue of THE MAGAZINE OF STANDARDS.

Parts Numbering: Non-Significant, Classified, or Significant; and Drawings vs Exact-Text Descriptions for Purchased Parts. *A. R. Coleman, Engineer, Planning Standards and Apparatus Drafting Group, Western Electric Company.*

Parts numbers are useful tools that are indispensible during production, inspection, and assembly of the product. Without a part number it would be difficult for accountants and engineers to control costs and maintain a competitive position with other manufacturers. However, parts numbers are usually of little consequence after the product has been assembled and sold. The customer is interested in the product as a complete unit, and only becomes interested in the identity and cost of parts when replacements are needed.

Thus a parts numbering system is established primarily as an internal instrument for use during processing and later as a means of identifying replacement parts. This applies to most large enterprises where a diversity of products is assembled from a large number and variety of parts.

The products of some companies, however, are primarily parts which by their very nature lend themselves to a coded numbering system whereby anyone familiar with the code can tell everything he needs to know about the part. For example, in a numbering system for washers the first digit might stand for a plain washer, the second for the material (brass or steel), the third for the internal diameter, the fourth for the outside diameter, the fifth for the thickness, and the sixth for the finish. The shortcomings of such a system become increasingly apparent as an enterprise grows in size and its products become more diversified.

A part number is the key that opens the door to an orderly control system for the manufacture of a product.

Western Electric uses a letter prefixing a number on a drawing to designate the general group or class of drawings of which it is a part. Thus the prefix "C" classifies the thing being numbered as a tool or machine. The prefix "N" classifies it as a gage. The prefix "P" classifies it as a piece part on apparatus or equipment the company is producing. Once a number is assigned to a part it can never be used again. It continues to designate the same part even though manufacture of the part may have been discontinued. Approximately 350,000 part numbers have been assigned by the Western Electric Company to date.

Tabulating machines are used extensively in scheduling parts in the shop and for accounting purposes. The machines available may impose a further restriction on the part numbering system by restricting the length of the number to a definite number of digits. In order to prevent duplication of numbers by the company's plants in various parts of the country, a central control organization assigns blocks of numbers to each plant location. A single control is then established at each plant to assign numbers consecutively from the assigned block.

Numbers above 500,000 have been assigned for many years to something other than parts. It is now recognized that the remaining supply of six-digit numbers for parts is rapidly being exhausted. In setting up the present system it was recognized that a letter prefix on a number already had a definite significance in Western Electric's system. Adding to the number of digits was considered undesirable. Therefore, it was necessary to devise some other means of replenishing the supply of part numbers.

It was decided to standardize on six-digit numbers with a letter in place of a number for the third digit from the left. Thus, a part might be given a number; P-10A100. The letters I, O, S, and Z can be confused with the numbers 1, 0, 8, and 7. For that reason these letters have been banned in the part numbering system.

The new system provides such a large reserve supply of numbers for future use that it is believed it will meet any foreseeable demand.

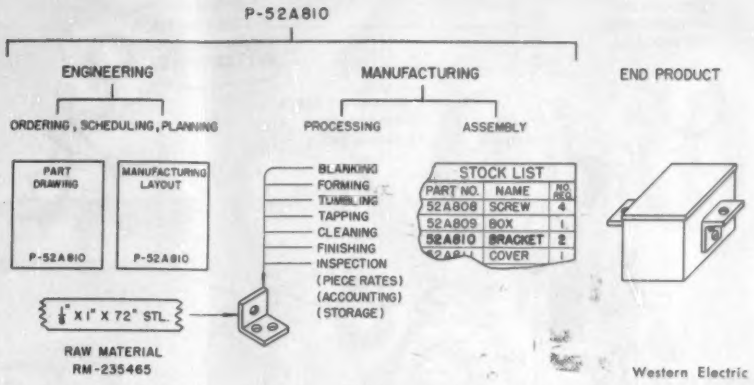
Many parts have multiple uses and it is important that a record be kept to indicate all uses for each individual part. Without such a record, changes might be made which would render the part useless for some applications. If a change in a part is desirable for some applications and not for others, the existing part retains the number and a new number is assigned to the changed part. The "used-on" information can either be shown in a

side column on the drawing or on separate cards in a card catalog. Both systems have been used in Western Electric's plants. Separate cards are now favored because some parts are used so extensively that the drawings become cluttered with "used-on" information.

Such a file is a big time saver. Care must be taken in creating and maintaining it, however, since errors built into the file cannot readily be detected and eliminated. The file can only be replaced through the expensive and tedious procedure of breaking down each individual stock-list. If the life of an individual product is comparatively short, such a catalog may be a needless expense. If the life of a product is 30 or 40 years, however, and if it is important to provide maintenance parts, there is ample justification for the effort of creating and maintaining such a file.

Western Electric maintains a standard book of preferred and general use fasteners, such as screws, nuts, and washers, which have been assigned numbers for use in the company's products. The Hawthorne Plant in Chicago, which is headquarters for the company's manufacturing standards, is responsible for maintaining the general parts book. The part numbers are taken at random from the block of numbers assigned to the location which requested the numbers. If there is need for an item not shown in the standard, a description is sent to the control location. A number is assigned to the part and steps are taken to be sure the part is added to the standard on the next revision.

A study of the practices in other industrial organizations indicates that each one has its own system of part numbering. Each system is subordinate to the particular problems of the manufacturer and appears to be tailor-made to satisfy the needs of each organization. There does not seem to have been any attempt to standardize parts numbering systems on a national basis. It is questionable whether industry as a whole would find it practical to change established practices to different practices standardized on a national basis.



Value of part number for identification during manufacture of product

Drawings versus Exact-Text Descriptions for Purchased Parts

Ornate, fancy drawings have given way to the simplified drafting practices of today. Simplified drawings should still retain sufficient information to provide a complete description of the part. Likewise, a text description of a part should convey the intent of the designer to the supplier so concisely that he will supply satisfactory parts with a minimum of effort.

Many have scoffed at the idea of supplying a drawing to a supplier on such a simple object as a screw. Yet, the responsibility for obtaining an adequate part might be delegated to a clerk who might be more interested in a date for the evening than in the quality of the item being purchased. He might leave vital information out of the description. The missing information might only affect the finish. This might be corrected with a minimum of cost and delay by applying the finish after the part had been received. On the other hand, lack of finish allowance might cause assembly difficulties if it resulted in too tight a fit.

Failure to specify the type of steel or to indicate that a high-tensile screw is required might actually result in breakage of the screws and might shut down an assembly line affecting a large number of employees until a new supply of screws could be obtained. When a drawing is provided, the designer or engineer responsible for the product has assurance that adequate, uniform information which meets his approval will be provided to the supplier with each order. He also retains engineering control since changes cannot be made in the drawing without his approval.

Regardless of whether a drawing or a text description is used, it is well to take full advantage of all available nationally accepted standards in describing the object desired. A drawing or text description of a part referring to "steel" is not as adequate as one which refers to "AISI C-1038 Steel." Likewise, a reference to a "round head machine screw" is not as explicit as "round head machine screw per ASA B18.6."

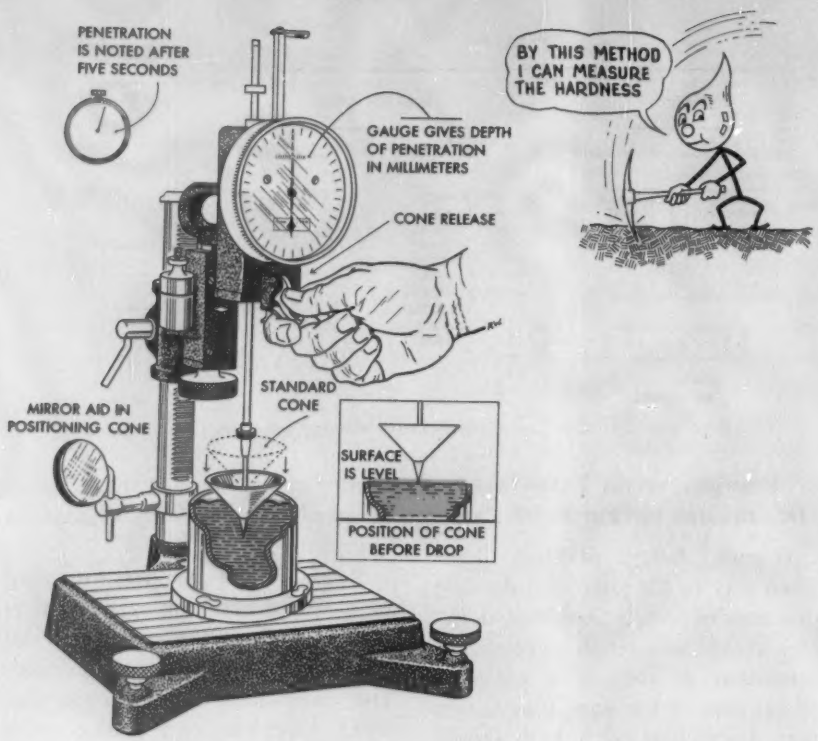
The following would be considered an adequate description on a screw:

".138″-32 UNC-2A Finish Allowance .001″, Pitch Diameter .1159″ Max. .1131″ Min., x 2½″ Round Head, AISI C-1038 Steel Machine Screw per ASA B18.6."

An order with this description could be placed with any screw supplier and he would know exactly what was desired as well as the requirements he would have to meet in order to have the product accepted by your inspection organization.

Western Electric has standardized both on drawings and text descriptions for providing information to outside suppliers on purchased parts. It is left to the discretion of the engineer responsible for the part to determine the most satisfactory manner of describing the object to be purchased.

Records on rejected lots of purchased parts might be reviewed to see if the quality of the descriptions can be improved.



Methods of Follow-up and Review of Existing Company Standards.

Dale F. Engstrom, Cutler-Hammer, Inc.

"Follow-up" covers determination of accomplishments. "Review" is dynamic examination to find needed improvements.

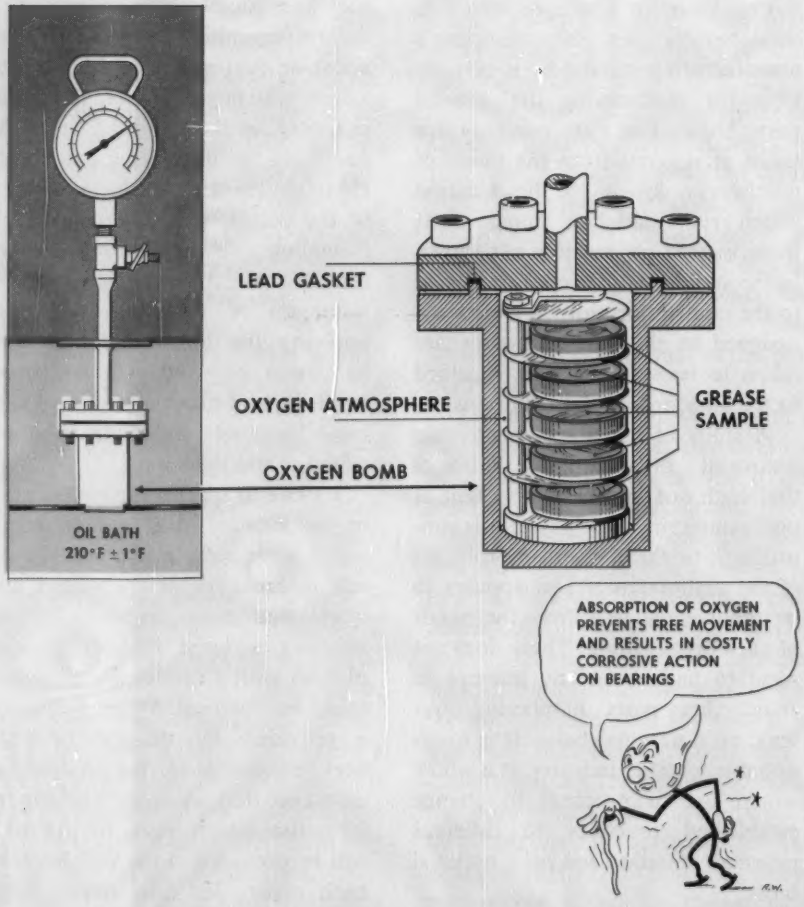
In this program covering standardization of materials, parts, and processes used to manufacture electrical control apparatus, existing nonstandard items and methods are investigated for possible change to a new standard when one is set up. The immediate savings are then tabulated.

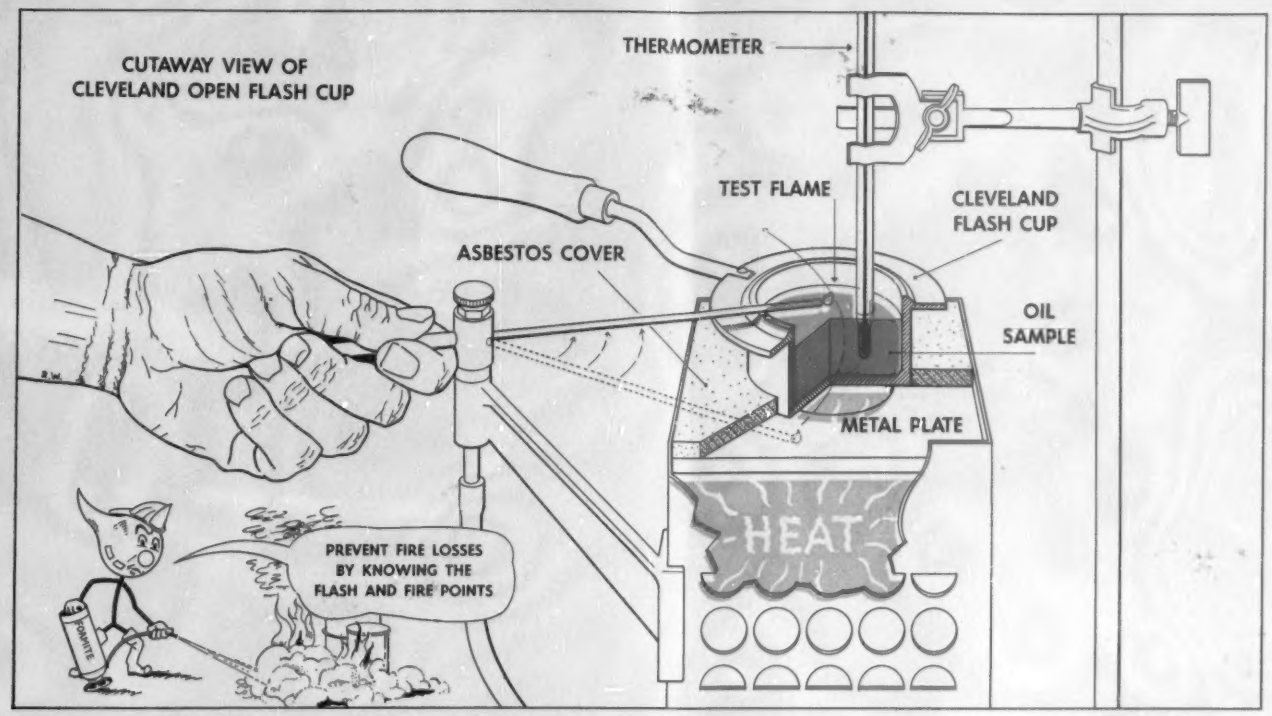
Expected long-term accomplishments, resulting from eventual replacement of nonstandards by obsolescence, are estimated and recorded for future follow-up. Reduction in number of variables (a major long-term benefit) will be measured by comparison with what they would have been without standardization.

United States Steel Corporation's *ingratiating little oil-drop figure shows in popular terms what each standard test called for in the Lubrication Engineers' Manual is intended to accomplish.*

Penetration Test *illustrated above is ASTM D-217-52T; (American Standard Z11.3-1952). Clear and interesting explanations supplement the drawings and tell what penetration is; why the test; how to determine penetration; and list typical penetration results.*

Grease Oxidation by the Oxygen Bomb, *ASTM D 942-50 (American Standard Z11.65-1950) is the test illustrated at right.*





Standard test for flash and fire points by the Cleveland Open Cup Method, ASTM D 92-52 (American Standard Z11.6-1952) is illustrated here. As in other illustrations in U.S. Steel Corporation's Lubrication Engineers' Manual, clear, simply worded explanations are given under the standard headings adapted for each test. In this case, the headings are: What is Flash Point and Fire Point?; Why the Test?; Test Procedure; and Typical Results.

Reports of accomplishments, immediate and potential, are made for individual projects when a standard goes to Management for approval. A summary of standardization efforts and accomplishments is made to Management annually. In addition, an accomplishment notebook is kept detailing all of the benefits obtained and expected.

Review is necessary to keep standards dynamic. Present plans include review of existing standards on a five-year cycle unless needed revisions are discovered earlier.

Draftsmen are also requested to record all nonstandard selections made in their daily operations and the reason why a standard was not usable. This information is analyzed to determine whether the standard needs revision.

These follow-up and review systems require detailed analysis by competent personnel. Although they cannot be done easily they should not be slighted.

Standardization is a form of cost reduction; therefore, it is justified only by savings determined by follow-up.

Methods of Printing, Binding, and Distributing Company Standards. *L. M. Dalcher, Superintendent of Standards and Publications, Fairbanks Morse Company.*

By using displays and examples, Mr Dalcher gave the CMC members a detailed account of the Fairbanks Morse Company's method of preparing first drafts and final copies of their standards, their method of distribution, and their check-up to be sure that each of their standards manuals is kept up-to-date.

Standards in Relation to the Use of Lubricants. *Charles A. Bailey, Lubrication Engineer, National Tube Division, U.S. Steel Corporation.*

A lubricants testing laboratory is part of the research laboratory of U.S. Steel's National Tube Division. Tests are performed for all divisions of the Corporation to help solve their problems as users of lubricants. A *Lubrication Engineers' Manual*[1] has been developed to explain the significance of the various testing procedures.

Nationally accepted standards have been used in the testing procedures as far as possible. When no national standard is available, standards of Federal Government departments or trade associations are referred to; or if there are none, a standard of a single company may be used. Failing all these, new standards are developed. Each individual page of the *Manual* is a brief and concise explanation of a particular test. It includes sections on oil tests, water leaching and emulsions, grease tests, extreme pressure load and wear tests, oxidation tests, and a final section on application requirements.

Each of the Corporation's divisions or locations has its own lubrication engineer who is responsible for seeing that the right lubricant is used in the right place.

Standards in Relation to Protective Coatings. *Harry W. Howard, Technical Services Laboratory, Shell Chemical Corporation.*

This paper is published on page 202 of this issue.

[1] Available from Advertising Department, National Tube Division, United States Steel Corporation, Room 2123, 525 William Penn Place, Pittsburgh 30, Pa. at $5.00 per copy.

Shell Chemical Corp

PROTECTIVE COATINGS

by H. W. HOWARD

THE cost to American industry for protecting steel structures, bridges, and other metal equipment against atmospheric corrosion amounts to an estimated 2 billion dollars per year. With this tremendous expenditure of money, it can readily be seen why industry has placed such importance on corrosion control, and how necessary it is to assure the greatest value per dollar expended. In today's economy, the important factor is not the cost of a gallon of paint, but the applied cost of the coating material as balanced against the years of corrosion protection given. For this reason, corrosion control is developing into a true science.

In the early days of metal protection, the industrial user was restricted to the integrity and discretion of the coating manufacturer as to the proper type of coating system to be employed.

The coating manufacturer in turn was restricted to the available raw materials with which to formulate satisfactory metal protective coatings. As you are well aware, these raw materials were limited in number, and most metal protective systems were based on a red-lead type primer with linseed oil as the vehicle portion. Topcoats were based on compositions of white lead, and zinc oxide for the lighter colors; chrome greens, natural ferrite colors, and black for the darker colors. As with the primer, the vehicle composition was essentially linseed oil.

It would not be fair to state that satisfactory metal protection was not obtained with such coating systems in many instances, but repainting at quite frequent intervals was almost mandatory for routine maintenance, and in certain corrosive atmospheres, no satisfactory coatings were available.

The procurement of these early coatings systems involved the simple writing of a purchase order to a paint manufacturer, ordering proprietary grades of coating materials. The purchaser had little or no knowledge as to the composition of the purchase.

Let us compare that situation with the situation as it exists today. The tremendous growth of the chemical industry has made available synthetic resins and other raw materials to the coatings manufacturer, with the result that coatings can now be obtained that will resist almost any given corrosive condition. However,

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Mr Howard is with the Technical Services Laboratory, Shell Chemical Corporation. *This paper was presented at the spring meeting of the Company Member Conference, Milwaukee, Wisconsin, May 16, 17, 1955.*

When reviewing surface corrosion problems, the work being done by the following organizations and their committees should be taken into consideration: the American Society for Testing Materials; the National Association of Corrosion Engineers, and the Federation of Paint and Varnish Production Clubs.

Resin-based *protective coating on engine nacelles and blow-back area of airplane wing resists synthetic hydraulic fluid and exhaust deposits (left)*

---

this presents the problem to the ultimate user of selecting the proper coating system for each specific corrosive environment.

Rather than to depend upon the paint manufacturer to recommend proprietory products, there is a trend for many companies to study their own specific corrosion control problems. These studies are usually conducted by an engineering group in the company with the result that basic coating practices and specification paints are developed. Improved methods in the field in conjunction with specification materials have achieved corrosion control at reasonable cost.

Consider the functioning of an engineering group concerned with corrosion control.

Their first concern is to add to their basic knowledge of surface preparation, paint application, and paint. Federal agencies and the technical staffs of paint companies render valuable assistance in providing this basic knowledge for corrosion control.

Since achieving minimum long-run maintenance costs is the primary objective of the corrosion control engineer, he must be aware that the cost and square foot coverage of a gallon of paint are not the only factors to be considered in selecting paints. Actually, the film thickness per coat and the corrosion-resistant properties of the coating determine to a great degree the ultimate cost of maintenance.

The matter of surface preparation also enters into the final cost of the corrosion control. An improperly cleaned or prepared surface can make even the most corrosion-resistant system show up badly in field application. Properly cleaned and primed surfaces exposed to most corrosive conditions usually need never be renewed other than by occasional spot priming at the time of repainting.

In general, coating systems that can be applied with dry film thicknesses of one mil per coat to give total film thicknesses of 4 to 5 mils are desired to obtain optimum efficiency from the standpoint of application cost and corrosion-resistant properties.

The effect on cost is exemplified by the fact that some coating systems exhibit excellent resistance to corrosion but require several more coats to give this 5-mil film thickness for protection of the metal than do other systems.

Multiple-coat systems, preferably two prime coats and two top coats, assist in the prevention of pinholes, craters, and voids in each type of coating and assure full coverage with the coating systems.

In general, paints made with modified alkyd and phenolic resin vehicles have been the types used most commonly for corrosion control. In areas which require coatings with better corrosion-resistant properties than these paints offer, chlorinated rubber and vinyl coatings have been used. The more recently developed EPON resin-based paints show the greatest versatility and, therefore, are the most attractive for corrosion control. They offer excellent corrosion - resistant properties and heavy film thicknesses per coat; from an overall cost standpoint they can be adapted to corrosion control in both mildly and severely corrosive areas.

Having arrived at satisfactory conclusions as to adequate surface preparation, paint, and paint application requirements, the modern organized corrosion engineering group establishes a control on this effort. The control is usually in the form of painting specifications which contain not only the surface preparation and paint application requirements, but contain either (1) a material specification wherein the ingredients, the basic raw materials in the paint, are specified as to quantity and quality; or, (2) a performance specification wherein no limitations are placed on raw materials but rigid requirements as to physical and chemical resistance properties are established.

There are arguments in favor of either type of specification. The material specification assures the purchaser of the precise quantity and quality of material placed in the paint. However, material specifications tend to become outdated within a few years due to the rapid advancements being made by the coatings industry in the development of improved corrosion-resistant coatings. The performance specification is favored by many procurers, who have no desire to accumulate information on paint ingredients and formulation, and who feel that their time can be better spent in studying their specific corrosion requirements and letting the paint manufacturer, skilled in the art, formulate coating materials to meet these requirements.

Much progress has been made in organizing painting practices. From reports received from people who have gone into corrosion control, it appears that they are achieving their objective at a reasonable cost.

Shell Chemical Corp

Surface *of washing machine is protected with a resin-based primer*

The Sixth National Conference on STANDARDS

Presented by the NATIONAL BUREAU OF STANDARDS *and the* AMERICAN STANDARDS ASSOCIATION

Washington, D. C. — *October 24-26, 1955*

Government and industry working together are presenting the Sixth National Conference on Standards. The three-day Conference will be held in Washington, D.C., October 24-26.

Sponsored by both the National Bureau of Standards and the American Standards Association, the Conference will give both government and industry an opportunity to present and discuss various problems and ideas on the Conference theme "Government-Industry Cooperation on Standardization."

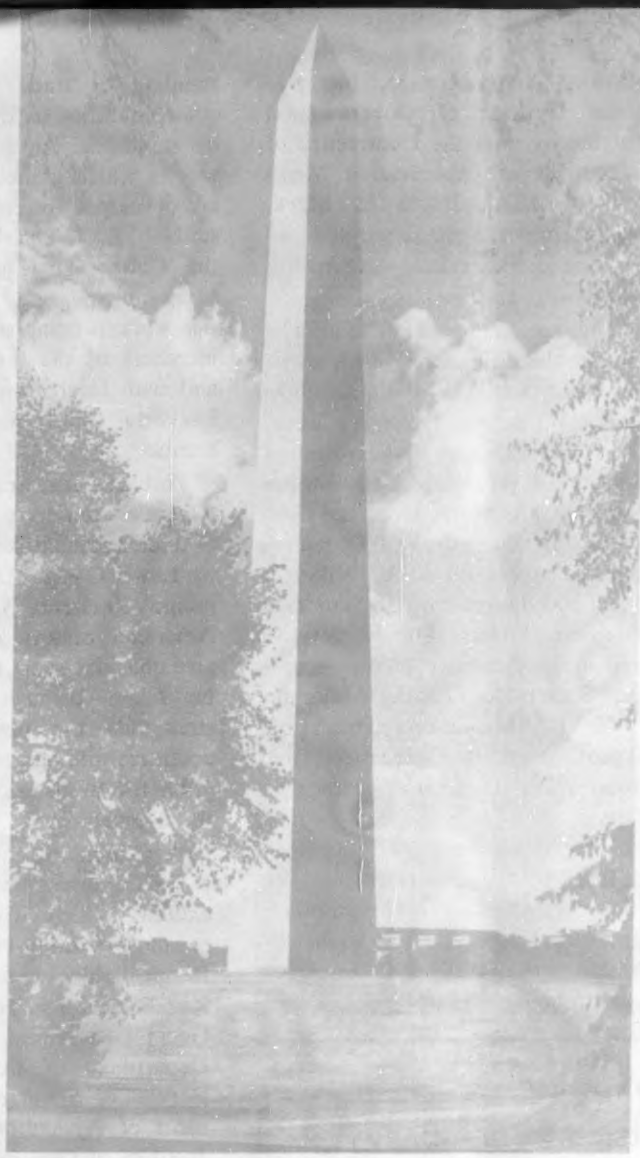
Because of the importance of the subjects under consideration, there will be no concurrent sessions. Therefore, sessions have been scheduled in the evenings as well as during the day.

At the opening session, Monday morning, October 24, Dr A. V. Astin, Director of the National Bureau of Standards, will welcome the Conference to Washington and to the Bureau. An outstanding Defense Department official is slated to make the keynote address.

The Monday morning session will be the Thirty-seventh Annual Meeting of the American Standards Association. Reports on "What has been happening in your ASA" will be given to this joint meeting of the ASA Board of Directors and Standards Council, company members, and guests. Vice Admiral G. F. Hussey, Jr, USN (ret), Managing Director of ASA, will report on policy and general developments. Arthur S. Johnson, Standards Council chairman, will report on technical activities.

In the afternoon, those attending the Conference will take buses from the Sheraton-Park Hotel for a two and one-half hour tour of the National Bureau of Standards. This will be followed by tea at The Manse. Wives of the Bureau's senior staff members will be the hostesses.

The Legal Implications of Standardization will be discussed at a



session starting at 8:00 P.M. Monday evening. The Honorable Lowell B. Mason, Commissioner, Federal Trade Commission, will preside. Among the speakers will be Ralstone R. Irvine of Donovan, Leisure, Newton and Irvine, New York, and Maxwell H. Elliott, General Counsel of the General Services Administration, Washington. The U.S. Department of Justice has also been invited to participate in the program.

Government and industry standardization presented from the level of the Office of Secretary of Defense in the morning and from the level of the Army, Navy, and Air Force in the afternoon will be the feature of the second day (Tuesday, October 25). These sessions are sponsored jointly by the Department of Defense and the Company Member Conference of ASA. Marvin C. Olsen, National Cash Register Company, and chairman of the Conference, will preside.

Tour of *National Bureau of Standards (picture, page 204) is one of the Conference features; Technical meetings will leave little time for visiting historic Washington, such as Washington monument (above); Conference headquarters will be at the Sheraton-Park Hotel (foreground, below).*

Roger E. Gay, Director of Cataloging, Standardization, and Inspection, is keynoting the morning session and will monitor the discussion period. The panel will include speakers on the Defense Department's cataloging program, quality control program, and standardization program, as well as a speaker from industry.

A representative from industry will also join panel members from the Army, Navy, and the Air Force in the afternoon session. Nathan Brodsky, Assistant Director of Cataloging, Standardization, and Inspection, will act as moderator for the discussion period.

At the Award Dinner, scheduled for Tuesday evening, October 25, the Howard Coonley Medal and the Standards Medal will be presented to the individuals selected as having made outstanding contributions to standards.

The Relationship of Industry Standards and Specifications to Those of Government will be the subject under discussion Wednesday morning, October 26. This session is sponsored by the General Services Administration, the National Institute of Governmental Purchasing, and the Conference of Executives of Organization Members of ASA. Clifton E. Mack, Commissioner, Federal Supply Service, General Services Administration, will preside.

The speakers will include The Honorable Edmund F. Mansure, General Services Administrator; Lester W. Benoit, Executive Secretary, Manufacturers Standardization Society of the Valve and Fittings Industry, and chairman of the Conference of Executives of Organization Members of ASA; Willis S. MacLeod, Director of the Standards Division, Federal Supply Service; and a representative of the American Society for Testing Materials.

C. L. Magnuson, Purchasing Agent, State of Connecticut; and John Ward, Director of Purchases, City of Chicago, will speak for governmental purchasing.

The Wednesday afternoon session, devoted to Government-Industry Cooperation in Standardization at the international level, will aim to help promote a better understanding of trade problems with other countries as they are affected by standards. As an example, the way in which grades and standards are developed for cotton will be described. E. J. Overby, Director of the Cotton Division, Agricultural Marketing Service, will show how this work is being coordinated with members of the domestic industry and with foreign signatories to the Universal Cotton Standards Agreements.

Problems that arise in the Latin-America area as a result of lack of unified standards will be taken up by Lewis Ortega, Division of Economic Research, Organization of American States. Mr Ortega will also consider some steps that might be taken through standards to strengthen the ties of American countries with one another. The program for this session is still under development.

A particularly interesting feature of the Conference will be the special exhibits which will be displayed in the Sheraton-Park's Burgundy Room. Exhibitors will be the American Society for Testing Materials, General Services Administration, Department of Defense, National Bureau of Standards, the Department of Agriculture, the National Institute of Governmental Purchasing, and the American Standards Association.

Registration fees for the Conference are as follows:

All sessions, including Award Dinner and Published Conference Proceedings	$20.00
All sessions, except Award Dinner—but including Published Conference Proceedings	15.00
Award Dinner only	7.00
Individual Sessions	2.00
Published Proceedings	3.00

Complimentary tickets will be issued to all Federal, State, and municipal personnel registering for the Conference, except for the Award Dinner.

A complete program, with registration cards, will be mailed early in September to subscribers to THE MAGAZINE OF STANDARDS, and others.

The Program Committee

SIXTH NATIONAL CONFERENCE ON STANDARDS

Dr A. T. McPherson, Associate Director, National Bureau of Standards, *Chairman*

G. P. Paine, Director of Public Relations, American Standards Association, *Secretary*

John C. Green, Director, Office of Technical Services, U.S. Department of Commerce

John B. Holden, Chief, Division of Procurement and Property Management, Office of Budget and Finance, U.S. Department of Agriculture

Willis S. MacLeod, Director, Standards Division, Federal Supply Service, General Services Administration

Charles M. Mortensen, Associate Manager, Trade Association Department of Commerce of the U.S.

Marvin C. Olsen, Chairman, ASA Company Member Conference; National Cash Register Company

John E. McMurtagh, Sales Manager, The Sheraton-Park Hotel

T. E. Veltfort, Vice-Chairman, ASA Standards Council; Manager, Copper and Brass Research Association

Captain C. R. Watts, USN, Staff Director of Standardization, Office of Assistant Secretary of Defense, Supply and Logistics

Dr A. V. Astin, Director, National Bureau of Standards, *ex officio*

Vice Admiral G. F. Hussey, Jr, USN (Ret), Managing Director, American Standards Association, *ex officio*

Gas for New York *is carried across the continent from Texas through this pipeline. Here, supported on steel wires and trusses, the pipe crosses the Brazos River near Houston, Texas. A network of 425,000 miles of pipe supplies natural gas to more than 24 million households and thousands of industries.*

Steelways

Safety FOR GAS PIPELINES

by LESTER W. BENOIT

Remote or sparsely settled areas as well as big city streets where gas pipelines are buried are covered by the newly revised Section 8 on gas transmission and distribution piping of the American Standard Code for Pressure Piping.[1]

Since people can't be kept a specified distance from pipelines, the document provides for "built-in" safety features. Every aspect of safety in design and installation has been covered in the first comprehensive code for long-distance gas piping in the United States.

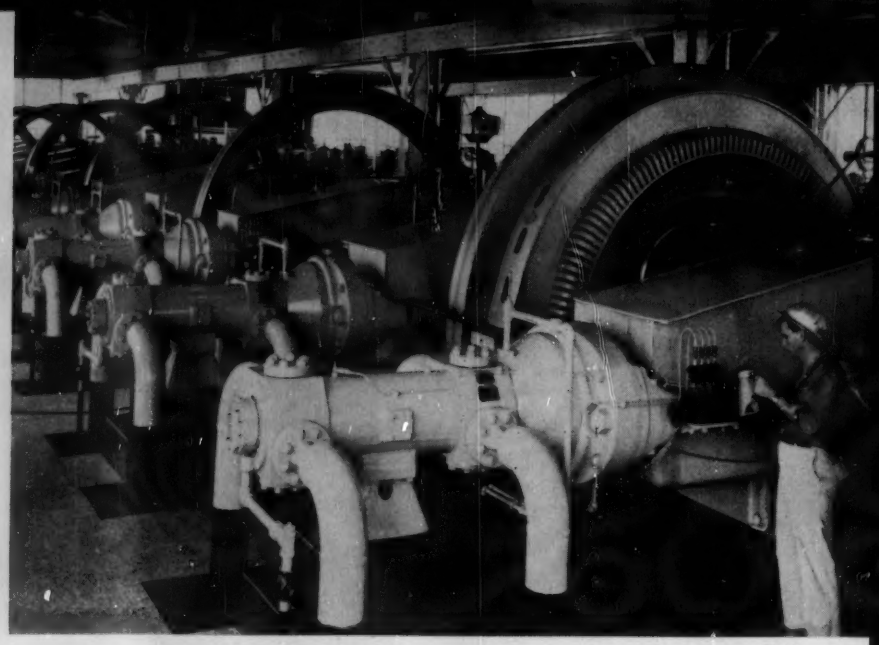
The chief objective of the code is to ferret out the causes of transmission line failure that affect public safety and to set down for the guidance of the gas industry procedures which will eliminate failures due to design, construction, and maintenance.

The code actually represents the best practice in the gas industry. Begun in 1951 at the request of the American Gas Association who wanted public safety insured, the code is the product of constant research and testing for safer facilities in the industry.

Because of new materials and advances in methods and construction, the code has just been revised. A subcommittee of more than 70 experts, representing public utilities, federal, state and municipal government agencies, and safety groups, was organized under the Committee on Code for Pressure Piping, one of the giant projects going on under ASA procedures.

Mr Benoit is Executive Secretary, Manufacturers Standardization Society of the Valve and Fittings Industry. He has been secretary of Sectional Committee B31, Code for Pressure Piping, since 1948. Recently he was elected vice-chairman of the Mechanical Standards Board, and re-elected chairman of the Conference of Executives of Member Organizations of ASA.

[1] Gas Transmission and Distribution Pipelines, American Standard B31.1.8-1955, $2.50. (Section 8 of American Standard Code for Pressure Piping) *Sponsor:* American Society of Mechanical Engineers.



Steelways

To wrap new pipeline *before laying it in the ground, steel coating and wrapping machine hangs from boom on tractor that moves alongside pipe as wrapping progresses.*

Compressor station *where 16 giant engines pump 330,000,000 cubic feet of natural gas every day to marketing points 400 miles away. New "Section 8" of Code for Pressure Piping contains special safety provisions to protect persons living or working near compressor stations as well as for prevention of accidents in the compressor stations themselves.*

The group flew over the major pipelines in the country to study the population densities along the lines. They obtained aerial surveys of the pipelines, and even employed a large engineering consulting firm to analyze these aerial photographs and make a statistical study of population densities along the routes. Result: The committee saw that the safe operating pressure of the gas had to be determined by the size of the population drawing on the facilities at any point. For this reason, the group specified four different types of construction, each of which progressively increases the degree of safety according to the density of population.

The subcommittee spent almost three years in developing the 105-page document. They have dealt with all safety problems normally encountered in the gas industry, first of all for the general public, and then for employee safety to the extent that it is affected by basic design, quality of materials and workmanship, and requirements for testing and maintenance.

Some of the main provisions of the code concern compressor stations, qualification of materials and equipment, welding, fabrication details, over-pressure protection, operating and maintenance procedures, gas services, and customers' meters and regulators.

Persons who live or work near compressor stations are protected in case of an emergency. The code says that any gates located within 200 feet of the station must open outward and must remain unlocked if the closed-in area is occupied. All electrical facilities near the compressor building must conform to the requirements of the American Standard National Electrical Code. Safety measures are specified for keeping dangerous liquids from being piped along with the gas into the compressor stations. Sensitive pressure devices in the stations will watch at all times to be certain pipelines are not overloaded.

Home owners and very small commercial concerns who get their gas from high-pressure distribution systems are protected by a highly dependable service regulator which reduces the pressure to one suitable for household appliances. Should gas contain extraneous materials that interfere with service regulators, other protective devices, such as monitoring regulators, relief valves, or automatic shut-off controls, are installed to prevent overpressuring of a consumer's appliances. If the gas is odorless, the standard requires an odorant to be added so that a person may tell whether the gas is escaping.

Where gas pipelines parallel overhead electric lines on the same right of way, the pipelines will employ blow-down connections to direct the gas away from the electric conductors. The gas company also makes studies in collaboration with the electric company on the common problems of corrosion and electrolysis. If necessary, measures to protect joints in pipeline against induced voltages by lightning strokes are employed. Leak tests are made to be sure all pipes are gas-tight before they are installed.

Services according to the code are installed at such a depth as to protect them from normal external loadings and gardening or farming. The pipes are also cased or bridged where they may be struck by instruments plowing at a considerable depth or where extra-heavy loads may be imposed on the soil above them. In every case the soil above a pipeline must always be heavily compacted and free of rocks or building materials which may cause damage to the pipe or its protective coating.

All underground vaults or pits which are used for valves or pressure-regulating stations are so constructed as to shield them from damage by flooding or from traffic hazards. These vaults are ventilated to minimize the collection of a combustible atmosphere.

Periodic patrolling of the pipeline area is made to observe surface conditions, such as weather, terrain, indications of leak, or construction activities, which might affect the safety and operation of the pipeline. Main highways and railway crossings are inspected with greater frequency than any other areas.

This code has been awaited by the whole gas industry to improve its operations for safety and economy in distributing one quarter of the nation's energy. It will cover 425,000 miles of pipeline carrying gas from far-away Texas or Oklahoma up to the consumer's gate.

This document has been developed so that, if necessary, government agencies having jurisdiction over gas transmission and distribution facilities may adopt it by reference. By providing a suitable and adequate standard for this purpose, the industry hopes to avoid having to live under a multiplicity of nonstandard state and federal codes, all different from the others, and therefore burdensome.

But those who wrote the code believe that the greatest benefit to distributors and users of gas will come out of the voluntary acceptance of this code. If this is done, we will be free to make improvements in the code as new materials and new methods are found.

Up-to-date on . . . Reinforced Gypsum Concrete

New specifications covering both design and application are expected to lead to substantial improvement in the design, and especially in the application of reinforced poured gypsum concrete in institutional, commercial, and industrial structures. The new specifications are contained in the revised American Standard Specifications for Reinforced Gypsum Concrete, A59.1-1954.

The original edition, approved in June 1945, was concerned principally with basic building code requirements. It was well received by engineers and other interested groups, and its specifications have been generally adopted throughout the country in most model codes and in major city codes. It has also been followed closely in manufacturers' recommendations to their potential customers.

The new edition now defines the minimum requirements for field application of all types of reinforced gypsum concrete construction. It also gives specifications for all the materials required. Those materials specifications are included which, on the basis of previous experience and data available, the committee believes will give satisfactory performance. Among these are specifications for steel, sub-purlins and reinforcing fabric (mesh); gypsum concrete mill mixture; water; formboard; acoustical fiberboard; asbestos-cement; fibrous glass; and joint tees.

Of special significance is a prefatory note which points out that:

"The use of equivalents or better is permissible. Other formboards or structural components may be used, provided tests and field performance have demonstrated them to be the equivalent of the requirements herein specified."

The revised standard also embraces all of the design requirements included in the superseded standard insofar as poured gypsum roof constructions are concerned. It does not cover design requirements for the precast type of reinforced gypsum concrete slabs, however, since these are to be dealt with in subsequent specifications to be prepared by committees of the American Society for Testing Materials.

An appendix, directed to the specifier and user of the revised standard, is not considered a part of the specification. This appendix covers (1) limitation of use, (2) support of suspended ceilings, (3) drying of slabs, (4) provisions for expansion and contraction, (5) roof coverings, (6) painting of undersides of poured gypsum concrete slabs, and (7) framing requirements. Specific details are set forth for these items, all of which are prominent factors in the design and use of poured gypsum construction.

Worthy of note, too, is the fact that the new specifications are so framed that they can be readily utilized by specification writers and building code authorities by mere reference.

The new publication was co-sponsored by the Building Officials Conference of America and the Gypsum Association. Chairman of the ASA Sectional Committee was Walker S. Lee, member of the New York State Building Code Commission, representing the Building Officials Conference of America. Secretary of the committee was O. H. Storey, Jr, manager of technical services of the Gypsum Association.

The editorial committee consisted of John A. Robertson of the United States Gypsum Company; George F. Long, Inland Steel Company; O. H. Storey, Jr, Gypsum Association; and E. R. Lindberg, president of the roof deck applicator firm of the same name.

Copies of American Standard Specifications for Reinforced Gypsum Concrete, A59.1-1954, are now available at 75 cents.

FORCE AND WEIGHT STANDARDS *GAIN NEW IMPORTANCE*

by ARTHUR C. RUGE

Ruge-deForest Incorporated, Consultants to Baldwin-Lima-Hamilton Corporation

NEW possibilities in use of basic standards for measurement of force and weight are offered by the National Bureau of Standards as a result of development of several new type portable calibration instruments. This equipment increases the Bureau's capacity for force and weight calibration of measuring systems to 12,000,000 lb. Load-measuring systems in capacities from 300,000 to 3,000,000 lb can now be calibrated by means of a single load-sensitive unit.

This development is believed to be of equal importance with the commonly used proving ring which was developed in the Bureau laboratories by H.L. Whittemore and S.N. Petrenko nearly 40 years ago. Proving rings now range in capacity from 300 to 300,000 lb in compression and up to 100,000 lb in tension. Although several 300,000 lb capacity proving rings can be used together to calibrate testing machines of larger capacity, there is a limit to the practicability of this procedure.

The testing and calibration activities of NBS stem from its custody of the nation's basic physical standards. Accuracy and uniformity of measurements throughout the United States depend on these standards. Congress accordingly authorized the Bureau to engage in testing and calibrating services, particularly when sufficient accuracy cannot be obtained elsewhere.

The NBS service is unique and of inestimable value to the users and manufacturers of precision force- and weight-measuring equipment since the Bureau is the only place in the United States where the highest accuracy is available in the calibration of secondary calibration equipment for checking the accuracy of weighing and force-measuring devices.

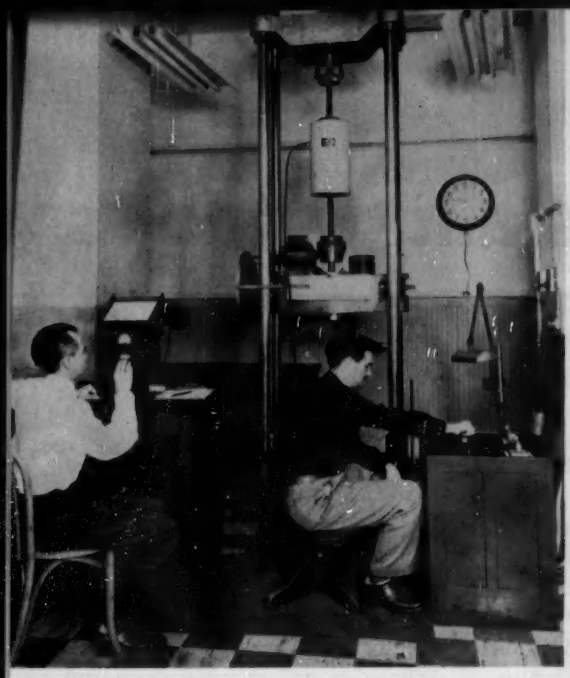
The Bureau does not compete with commercial testing laboratories. Restrictions limit the use of the precision equipment only to calibration of the working standards in research laboratories and industry; to such tests as the comparison of laboratory standards or instruments with national standards; and tests of such devices and materials as are critical in industrial or laboratory operations.

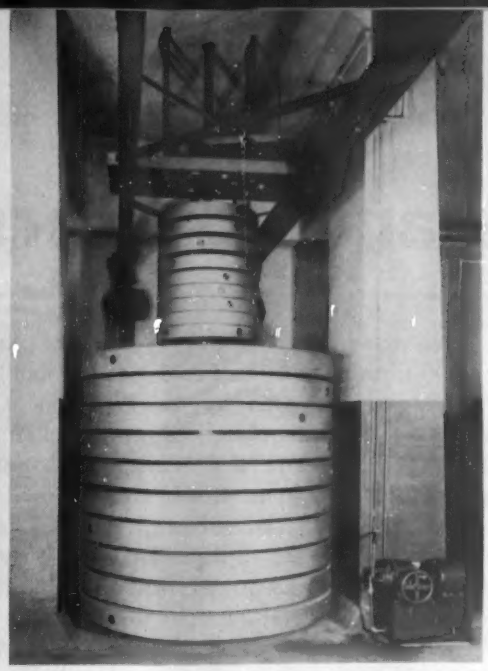
New Method Is Electrical

The new calibration method was made possible by the development of the bonded resistance wire strain gage. This gage offered an electrical means of sensing changes in high forces with the accuracy and sensitivity required for calibrating testing machines, weighing scales, and other load-measuring systems. Electronic amplification is commonly used with indicating instruments. Since these gages respond primarily to very minute strains rather than to perceptible mechanical deflection, the use of an elastic compression element in the form of a column permitted the development of a compact, efficient, high-capacity load-sensing unit. This makes possible electrical measurement of loads greater than 300,000 lb with a single unit.

The development of the Bureau's strain gage type calibration equipment was initiated by Dr Lyman J. Briggs, director emeritus of NBS, and carried out under the direction of B. L. Wilson and D. R. Tate. Their objective was to achieve a stability and accuracy equal to that of the proving ring, or about one-tenth percent. The Bureau profited to some extent by the fact that load cells in a wide range of capacities had already been developed by Ruge-deForest, Inc for Baldwin-Lima-Hamilton Corporation. These are used for such varied purposes as weighing the contents of tanks, bins, and hoppers, measuring forces such as the thrust of rocket engines, Prony brake loads, etc, and serving as load-sensitive devices in the automatic control of machinery. In the important and rapidly growing field of electrical weighing and force measurement, the significance of the Bureau's calibration service to industry and the recent expansion of its facilities is hard to over-estimate.

The NBS strain gage dynamometers are essentially solid steel columns with eight resistance wire strain gages equally spaced around their centers. Four are bonded to





Calibrating *100,-000-lb capacity load cell in tension at National Bureau of Standards on 111,000-lb capacity dead-weight machine—(left).*

(Right)—Weights used in calibrating the load cell are under the testing machine. Maximum error in mass of any one of 10,-000-lb weights is about 0.1 lb.

the column longitudinally 90 deg apart and the other four are bonded in transverse positions. The column is flared out at top and bottom to enlarge the bearing areas and a cylindrical protective metal cover is held in place by set-screws through retaining rings around the enlarged ends of the column. The strain gages are connected together to form Wheatstone bridge circuits and a conventional type Baldwin SR-4 strain indicator was modified as a load-indicating device.

Over a period of several years, strain gage dynamometers of 100,-000 lb, 300,000 lb, 1,000,000 lb, and 3,000,000 lb were built by NBS. These include four each of the two largest sizes. Their accuracies meet the requirements of ASTM E74-50T which provides tolerances of 0.4 percent for 3,000,-000 lb and 0.3 percent for 1,000,-000 lb. The largest dynamometer weighs about 225 lb which permits easy handling by two men, and its rugged construction permits handling on hand trucks or by crane. The million-lb dynamometer weighs only about 30 lb. Associated electrical instruments are also readily portable.

Advantages in All Capacities

Although these high-capacity dynamometers were developed primarily to extend the range of capacity beyond that of proving rings, they have been found to have characteristics which make this method advantageous in lower capacities also. Their principal advantage in high capacities is expected to be in reducing the time for calibrating a testing machine of 10,000,000 lb to one-fourth and the cost to one-half that was formerly required in calibrating a testing machine of only 2,500,000 lb capacity.

Much less skill is required of the operator to obtain satisfactory readings under loads that are changing rapidly or that transmit considerable vibration. Furthermore, measurement of load can be made at a remote point. Also, the scale division corresponding to capacity load may be adjusted to match any desired interval.

Although the present measuring instruments are adequate in sensitivity and ease of handling, it is believed that it will be possible to further improve their quality and design to meet the special requirement of this type of service. It is expected that such improvements will eliminate difficulties in producing the required high degree of stability in the strain gages and the measuring circuit, and the relative complexity and high cost of the electrical components.

Of significance in connection with the development of new type calibration equipment is the fact that until about 1950 approximately 90 percent of the elastic calibration devices submitted to NBS for calibration were proving rings. Now the volume of calibration work has increased about 100 percent and load-sensing units based on resistance wire strain gages comprise about 30 percent of the calibration devices and force-measuring units submitted for calibration.

Since the capacities of most of these units are under 100,000 lb, they can be calibrated on one or the other of the Bureau's two dead-weight testing machines. These were installed after the development of proving rings to provide a means of applying accurately known forces to calibrate these instruments. These machines have capacities of 10,100 lb and 111,000 lb.

Present NBS practice is to calibrate load-sensitive devices having capacities between 300,000 and 1,000,000 lb by means of calibrated proving rings in a testing machine of adequate load capacity. Load sensitive devices having capacities between 1,000,000 lb and 10,000,-000 lb are calibrated at the NBS by means of the 1,000,000 and 3,000,-000 lb strain gage type dynamometers.

To Cut Home Building Costs

- - - standard doors and windows

Doors and windows in too many wrong sizes add nearly $100 to the cost of a small house, thus wasting close to $100 million a year for the home-buying public. This was the conclusion of the second round table in the series on coordination of dimensions of building materials and equipment. The series is sponsored jointly by *House & Home*, the Research Institute of the National Association of Home Builders, and the American Standards Association (see THE MAGAZINE OF STANDARDS, May, 1955, p 156).

The round table recommended a few standard sizes. It urged door and window manufacturers to obtain the assistance of ASA Sectional Committee A62 in working out the details of coordination with dimensions of other wall components, and for approval of these sizes as American Standard.

In yesterday's handicraft house with yesterday's handicraft glass it may have made sense to cut all the other wall components to fit the odd size of the doors and windows, it was pointed out. But for today's engineered house and today's mechanized glass industry there is no good reason why doors and windows should not be dimensioned to fit predetermined openings whose size will work without waste of material or labor with the already coordinated modules of all the other wall components. These include the 16 in. or sometimes 24 in. module of wood framing and batt insulation, the 8 in. module of brick and concrete block, the 4 ft and 8 ft module of most interior and exterior facing sheets, and the standard 8 ft-plus-a-tolerance ceiling height jointly recommended for builders' houses by the NAHB Design Committee and the AIA Committee on the Homebuilding Industry. All these already conform to the basic American Standard 4 in. module (American Standard A62.1-1945) jointly sponsored by the Producers' Council, the American Institute of Architects, and the National Association of Home Builders.

Three basic heights and six widths are all that are needed for windows, the round table concluded. However, one of the principal failures in bringing about standardization has been in teamwork. Therefore, the round table believes that a start can be made in correcting the present confusion in window sizes by letting the manufacturers know the few sizes that will fit all real needs of the builders' house most economically and by outlining a workable program for getting these sizes widely used as soon as the manufacturers make them available at prices based on volume.

The few sizes selected must be carefully coordinated with the framing spacing and the standard modular dimensions of other wall components, it was pointed out. They must be carefully coordinated one with another to look right and work right together. And they must be carefully selected to meet the needs of the people who will live in the houses.

The round table recommends three basic window heights, six basic window widths, and two basic outside door heights. These are:

Window heights—3 ft, 4 ft, 6 ft rough openings.

Window widths—24 in., 32 in., 48 in., 64 in., 80 in., and 96 in. rough openings. Not all heights would be needed in all width; for example, there would be little demand for windows 6 ft high in the narrowest widths. One more basic width may be needed to fit the standard 5 ft bath from wall to wall.

Door heights—6 ft. 8 in. and 7 ft.

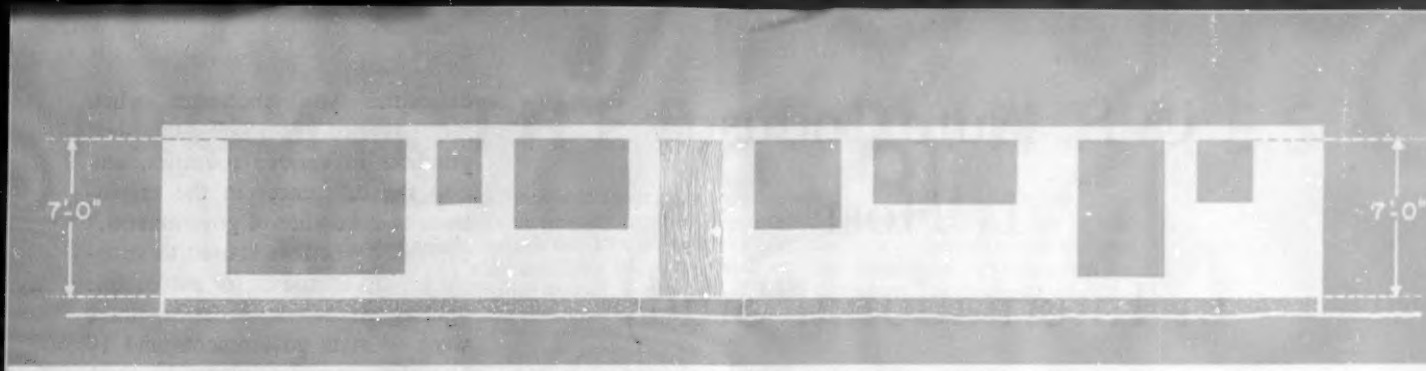
General acceptance of these few coordinated dimensions could save manufacturers millions of dollars by enabling them—and their suppliers—to concentrate production on a few sizes and by justifying a far greater investment in automation, the round table found. It could save distributors and lumber dealers millions of dollars by minimizing their inventory. It could save builders millions of dollars by speeding up construction, by reducing waste, and, perhaps more important, by making it easy to predetermine window opening dimensions. It would let small builders cash in on quantity production savings now available only to big operators. It would save architects countless hours of design time spent in coordinating sizes.

To realize all these savings, the round table recommends that the door and window manufacturers and their various trade associations avail themselves at the earliest possible moment of the services offered by the American Standards Association Committee A62 to work out with them all the details that must be solved before the basic dimensions proposed can be issued as new national standards.

Two other recommendations to reduce the cost of door and window openings were made:

1. That manufacturers offer window and door units incorporating structural posts and lintels fitted to the 8 ft-plus-a-tolerance ceiling height that is now coming into general use in low- and middle-priced houses.
2. That in determining many details that must be worked out for these coordinated sizes, the A62 committee will bear in mind the importance of eliminating the costly cripples now required over many window openings and the extra studs usually required alongside.

After the new basic sizes are put on the market there will be a transition period, short or long, when there



Windows and doors *line up well at height of either 6 ft 8 in. or 7 ft.*

will be just so many more dimensions on top of all those now available, it was pointed out. Even after the transition is accomplished, of course, some special sizes will still be needed for custom-designed homes in traditional style.

Both customers and manufacturers can help shorten the transition period. The customers—the builders, lumber dealers, and architects—can help by ordering, stocking, and specifying the new dimensions as soon as they are available. The manufacturers can help, the round table pointed out, by giving every builder a profit incentive to buy the standard sizes by basing their prices on anticipated volume and quoting substantially more attractive prices for units in these basic dimensions than they offer for odd sizes. They can also make it easy for architects and builders to specify these coordinated dimensions by cooperating in the publication of a special directory of modular components whose standard sizes will all fit together without waste.

No. 1 consideration *is people. Three basic window heights satisfy all needs*

House & Home reports first results already coming in from this Round Table:—

- The AIA Committee on the Home Building Industry announced that (in cooperation with ASA Sectional Committee A62) it will publish the Round Table recommendations as recommended standards of the AIA Committee and will urge all architects' offices to adopt them.

- On the West Coast, Earl W. Smith, president of the National Association of Home Builders, and Fritz Burns, past president, announced they will switch their houses to the new window sizes as soon as they are put on the market "at a volume price."

- The Lumber Dealers' Research Council began redesigning its LU-RE-CO panels to make use of the new sizes "assuming they will carry an attractive price."

- Middle-western Builder Andrew Place of South Bend, Ind, began having all his houses redesigned to concentrate on just three of the proposed basic sizes.

- FHA gave its enthusiastic support. Neil A. Connor, assistant commissioner in charge of Technical Standards, said: "These coordinated sizes look good to me. Obviously standarization like this will reduce costs, and the money saved can be used to add more space or more equipment to the house. FHA is very much interested."

- The Steel Window Institute called a special meeting of its Technical Committee to consider what can be done to implement the recommendations.

- The National Woodwork Manufacturers Association called a special meeting of its window and sash committee to study the proposed dimensions.

- The Design Committee of the Prefabricated Home Manufacturers announced that "the prefabricators can adopt the general conditions of the report."

- Libbey-Owens-Ford Glass Company and Pittsburgh Plate Glass Company both announced they will offer their double glass in standard sizes that will fit the new coordinated window dimensions.

U. S. Auto Industry Is Host in International Study of Headlamps

For four days, April 26-30, USA's automobile industry played host to a distinguished group of visitors from abroad. The group were members of what is known as the Brussels Working Party. Their job is to offer proposals that can form the basis for international recommendations on automobile headlights. The Working Party is a subgroup of Technical Committee 22 on Automobiles of the International Organization for Standardization, and Committee 3.3.5 on Automobile Lighting of the International Commission on Illumination.

The delegates, from Belgium, France, Holland, Italy, Germany, Switzerland, and the United Kingdom, were met in New York by USA representatives of Detroit automobile companies. Cars were provided so that a practical demonstration of the USA-type headlamps could be given during the trip from New York to Detroit. Needless to say, most of the trip was made at night. On the way, the group visited the NELA Park laboratories of General Electric to see how the headlamps are tested there; and had dinner one evening with representatives of the Electric Auto Lite Company at Toledo.

Under immediate consideration at the April meeting was a draft report on comparative tests of automobile headlamp passing beams of Anglo - American and European types. Purpose of the meeting was to consider the report and to reach whatever agreements were possible on proposed international recommendations.

In addition to the business sessions, the visitors were taken on a tour of the Ford engineering facilities; a tour of the General Motors Proving Grounds with a test demonstration; and a tour of the Plymouth Plant of the Chrysler Corporation.

Under the leadership of P. J. Kent, chairman of the Automobile Manufacturers Association ISO Liaison Committee, and V. J. Roper, chairman of U.S. Technical Committee 3.3.5 of the International Commission on Illumination, the visitors were offered outstanding entertainment.

The Ford Motor Company was host at luncheon at the Dearborn Inn on Wednesday, April 27. The General Motors Company was host at the General Motors Proving Ground Dining Room in the early evening. Luncheon on Thursday, April 28, was at the Chrysler Building in Highland Park, with the Chrysler Company acting as host.

The Thursday evening reception and dinner given by the USA automobile industry for the delegates from other countries and their wives was one of the highlights of the occasion. The reception was at the Veterans Memorial Building in Detroit. P. J. Kent presided. C. A. Chayne, vice-president of General Motors and chairman of the Advisory Committee of the Society of Automotive Engineers and of the Engineering Committee of the Automobile Manufacturers Association, was principal speaker.

"Yearly model changes have the effect of making some of our standards obsolete or in need of revision each year," Mr Chayne explained to the delegates. "Because of this, our standardization program in the automotive industry is a continuous one, year in and year out."

"We can readily appreciate the difficulties you encounter when facing varied, but well-established practices in various countries, and also the differences in the regulations of a number of governments," he said. "When we started to struggle toward standards for automobile lighting in North America, there were 48 state governments and 10 Canadian provinces to satisfy. Each of these jurisdictions was free to make its own regulations governing lighting, and many of them had done so.

"It took more than 25 years from the introduction of electric headlighting for automobiles before we achieved the acceptance of a standard headlamp unit and a standard system for beam control in 1939. A large part of this 25-year period was necessary to develop experience with different methods of constructing lamps, to try out various theories of beam design, and to learn how the public would use, and even abuse, the lamps on their cars.

"At the time headlamp standardization finally was achieved,[1] the effort represented a consolidation of the viewpoints of those active in all these states and Canada and in the organizations of some 20 vehicle companies and six lamp manufacturers."

"We do not regard our specifications as fixed or unchangeable," Mr Chayne declared. "We expect to continue to seek improvements. Your discussions here this week help us to understand your problems and you to understand ours. As we continue to work together, there is every possibility and probability of making important achievements together."

A dinner in honor of their hosts was presented the following day by the visiting delegates. The report of the technical work is being drafted by the secretary. Chairman of the Working Party is P. Devaux, Director of Research, Lampes Norma, Paris, France. The secretary is L. F. Ardoullie, Chief Engineer, General Motors Continental, Antwerp, Belgium.

[1] Society of Automotive Engineers' standards on sealed beam unit dimensional specifications and test specifications.

FROM OTHER COUNTRIES

Members of the American Standards Association may borrow from the ASA Library copies of any of the following standards recently received from other countries. Orders may also be sent to the country of origin through the ASA office. Titles are given here in English, but documents are in the language of the country from which they were received. An asterisk * indicates that the standard is available in English as well. For the convenience of readers, the standards are listed under their general UDC classifications. In ordering please refer to the number following the title.

535 OPTICS. LIGHT

Germany (DNA)

Light absorption in clear optical materials — DIN 1349

614.8 LIBRARY ADMINISTRATION

Denmark (DS)

Safety colors and symbols — DS 734
Specimens of colors to be used in connection with Standard DS 734 — DS 735
Symbols and signs to be used in connection with DS 734 — DS 736
Types of letters for signboards, posters, etc. — DS 737

614.84 FIRE BRIGADE

Czechoslovakia (CSN)

13 stds for hand and motor fire fighting apparatus and accessories — CSN series 3893 . . . CSN series 3894 . . .
5 stds for "fire hazard" signs — CSN 025090/5

615.49 DISPENSARY NECESSITIES

India (ISI)

Vaccine phials — IS 490

615.777/.779 DISINFECTANTS. INSECTICIDES

India (ISI)

Mosquito larvicidal oil — IS 588

621.3 ELECTRICAL ENGINEERING

Belgium (IBN)

Specification for Piezoelectric crystals — NBN 298
Rules relative to h.t. circuit breakers for a.c. lines — NBN 334

Czechoslovakia (CSN)

Servicing Electric transformers — CSN 343270
Letter symbols of basic electrical quantities — CSN 345571
7 stds for aluminum wires, cotton, silk or paper insulated — CSN series 347350 . . .
5 stds. for insulated cables used in mines — CSN series 347520 . . .
2 stds for low tension conductors for aviation purposes — CSN 347941/2
30 stds for structural parts of high tension overhead lines — CSN series 3486 . . . CSN series 3488 . . .
Turbo-generators, 3-phase, air-cooled — CSN 350211
3-phase asynchronous motors, explosion-proof types — CSN 350366
3-phase transformers, aluminum wired — CSN 351121
Mercury rectifiers — CSN 351510
7 stds for switchboards and parts — CSN 357030/6
Different diagrams of switchboards — CSN 357108
Different types of switch cupboards — CSN 357115

Israel (SII)

Domestic Electric Washing Boilers — SI 119
2 stds for installation of cables and conduits — SI 108, Section 302 & 303
Connectors for electric appliances and related pins — SI 105

South Africa (SABS)

Electrical equipment safety specification for flexible cords for power and lighting purposes — SV 104-1953

Spain (IRATRA)

Braided copper flexible conductors — UNE 20043
Color code for numerical values of electronic resistors and capacitors — UNE 20050
Standard frequencies for high-speed three-phase motors — UNE 20059

Yugoslavia (JUS)

12 stds for different rules pertaining to electrical installations — JUS series N.B2 . . .
8 stds for power and telecommunication insulators — JUS series N.F1 . . .

621.643 PIPES AND ACCESSORY PARTS

Japan (JISC)

Bronze gate valve, screwed type, for water lines — JIS B 2013*
Bronze gate valve, screwed type, pressure 10 kg/cm^2 — JIS B 2023*
2 stds for Bronze check valves, screwed type, pressure 10 kg/cm^2 — JIS B 2024/5*
Screw type, malleable cast iron pipe fittings, pressure 10 kg/cm^2 — JIS B 2301*
Screwed steel pipe fittings — JIS B 2302*

United Kingdom (BSI)

Glass pipeline and fittings — BS 2598:1955

Yugoslavia (JUS)

Gas and water steel pipes — JUS C.B5.211/2

621.791 WELDING. SOLDERING, ETC

Japan (JISC)

A.C. Arc Welder — JIS C 9301*

621.9 MACHINE TOOLS

Spain (IRATRA)

Carpenter's claw hammer — UNE 41054
Adze handle — UNE 41058
Saw set — UNE 41056

Yugoslavia (JUS)

21 stds for different forms of cutting tools — JUS series K.C1 . . .
51 stds for different milling cutters — JUS series K.D0 and K.D2
55 stds for drills, reamers, countersinks, etc — JUS series K.D3 . . .
31 stds for different files — JUS series K.D4 . . .
14 stds for methods of checking up installation of machine tools — JUS series M.G0 . . .

625.2 RAILWAY ROLLING STOCK

France (AFNOR)

Packing rings for compressed air appliances, tolerances — NF F 01-007
Triple valve of airbrake. Tolerances — NF F 11-004
Compressed air tank — NF F 11-020
Mirror and its mounting — NF F 31-008/9

629.113 MOTOR VEHICLES

France (AFNOR)

Automobile engine valves — NF R 113-01
Turnbuckles for tie-rods — NF R 126-07
Shackles and its axle for tie-rod — NF R 126-08/9
Wheel rim type BO.O — NF R 127-50
Method of mounting wheels on hub flanges — NF R 127-70
Nuts for hub bolts — NF R 127-75
Generator mounting, hinge type — NF R 131-05
Key, type "VELO" — NF R 321-01
Hexagon-head screw, fine thread — NF R 931-23
Different hexagon nuts used in automobile — NF R 932-12
Lock washers — NF R 933-20
Shaft end squares — NF R 940-01

Spain (IRATRA)

Drainage faucet — UNE 26082
Two-bolt oval gasket — UNE 26084
Speedometer — UNE 26112/3

629.12 SHIPS AND SHIPBUILDING

Japan (JISC)

3 stds for anchor chains — JIS F 3303/4*
Mushroom-type ventilator — JIS F 2407*
Gooseneck-type ventilator — JIS F 2408*

629.13 AERONAUTICS. AIRCRAFT ENGINEERNG

France (AFNOR)

Semi-finished, non-ferrous alloy products:
- Round bars — NF L 15-310
- Hexagon bars — NF L 15-320
- Square bars — NF L 15-330

Aluminum alloy sections:
- Plates — NF L 15-340
- Equal and unequal angles — NF L 15-510/1
- Bulb angles — NF L 15-520
- Channels — NF L 15-530
- Tees — NF L 15-540
- "Omega" — NF L 15-560
- Zees — NF L 15-570

Pipings:
- Round aluminum alloy — NF L 15-610
- Round, copper and brass — NF L 15-620
- Square, aluminum alloy — NF L 15-640
- Oblong, aluminum alloy — NF L 15-641
- "Torpedo" (streamlined) — NF L 15-660

Serration joints, parallel — NF L 26-210
Serration joints, radial — NF L 26-630

643.353 KITCHEN EQUIPMENT

United Kingdom (BSI)

Electric toasters for domestic use — BS 2608:1955

651.2 OFFICE FURNITURE. EQUIPMENT

United Kingdom (BSI)

Adjustable steel shelving (angle post type) — BS 826:1955

655 PRINTING. PUBLISHING

Spain (IRATRA)

Standard dimensions of metal types — UNE 1065

661.7 ORGANIC MATERIALS

India (ISI)

Ether: a) solvent, b) anesthetic — IS 336

665 OILS. FATS. WAXES

France (AFNOR)

Determination of specific weight of fats and fatty products — NF T 60-214

India (ISI)

Method of sampling and testing of vegetable oils and fats — IS 548

Israel (SII)

Edible cottonseed oil — SI 131

667.6/.8 PAINTS. VARNISH. LACQUER

Israel (SII)

Ready mixed oil paints — SI 132

Spain (IRATRA)

Oxide of antimony used in paint manufacture — UNE 48038

669 METALLURGY

Czechoslovakia (CSN)

10 stds for different grades of steel alloys — CSN series 4194 . . . CSN series 4196 . . . CSN series 4197 . . .

9 stds for gray cast iron products — CSN series 42 . . .

France (AFNOR)

Chemical analysis of iron ore — NF A 06-112/3

Determination of cadmium content in lead — NF A 06-508

Poland (PKN)

Bronze lingots — PN H-81741

2 stds for aluminum and aluminum alloy bars — PN H-93662, -664

7 stds for different kinds of steel — PN H-84041, H-92602, H-93208/10, H-93212, H-93417

South Africa (SABS)

Copper and brass tubing — 460/467-1954

Spain (IRATRA)

Determination of Rockwell hardness of metals — UNE 7053

Determination of Vickers hardness of metals — UNE 7054

Conversion table for Brinell, Rockwell and Vickers hardnesses of metal — UNE 7055

8 stds for different high grade carbon steels and alloys — UNE 36010/7

Fine structural steels — UNE 36020

Steels, easily machinable — UNE 36021

Magnetic steels — UNE 36023

3 stds for tool steels — UNE 36070/2

Common steel; generals — UNE 36080

Common Bessemer steel — UNE 36081

Common Siemens-Martin steel — UNE 36082

Common steel for particular purposes — UNE 36083

United Kingdom (BSI)

Sintered metal powder components — BS 2590-1955

674 WOOD INDUSTRY

South Africa (SABS)

Chemically impregnated wooden vine trellis poles — 418-1954

Grade "A" wooden crates for onions and potatoes — 496-1954

674.81 COMPRESSED WOOD

United Kingdom (BSI)

Medium-density resin-bonded wood chipboard — BS 2604:1955

675 LEATHER INDUSTRY

Poland (PKN)

4 stds for classification, testing, sampling and preservation of hides — PN P-22200, -006, -009, -213

677 TEXTILES

Poland (PKN)

3 stds for testing ropes and cordages — PN P-04721/2, -04725

Jute bags for exporting sugar — PN P-79603

Endurance test of felt — PN P-04711

United Kingdom (BSI)

Fastness to daylight of coloured textiles — BS 1006-1955

Coated fabrics (leathercloths) for upholstered furniture (PVC, NC and LO types) — BS 2601-3:1955

Germany (DNA)

Determination of count in fabrics — DIN 53853

Survey of different types of ring spindle — DIN 64039

3 standards for different test methods of textiles — DIN 53804, 53851/52

India (ISI)

Method for determination of grist (or yarn melidity in tex) of single jute yarn — IS 570-1954

Method for determination of relaxation shrinkage of woven fabrics containing wool — IS 665-1954

Simple methods for identification of common commercial textile fabrics — IS 667-1954

678 RUBBER INDUSTRY

United Kingdom (BSI)

Cellulose acetate moulding material — BS 1525:1955

Flexible polyvinyl chloride (P.V.C.) extrusion compounds — BS 2571:1955

679.5 PLASTIC INDUSTRY

France (AFNOR)

Determination of furfural index in cellulose — NF T 12-008

681.84 GRAMOPHONES

Japan (JISC)

Pickups — JIS C 5503*

687 CLOTHING, READY MADE

Denmark (DS)

Sizes and body-measurements for women's knitted underwear — DS 923

69 BUILDING INDUSTRY AND TRADES

South Africa (SABS)

Code of practice for the laying of wood block, board and strip floors — 043-1954

African hardwood flooring (block and strip) — 458-1954

Mastic asphalt for flooring — 503-1954

691.1 BUILDING MATERIAL

Chile (INDITECNOR)

Physical test of calcinated gypsum — INDITECNOR 2.30-4

Chemical test of calcinated gypsum — INDITECNOR 2.30-5

Plaster boards and sheets — INDITECNOR 2.30-6

Corrugated asbestos–cement sheets and tiles — INDITECNOR 2.30-171/2

Spain (IRATRA)

Structural plaster, quality standard — UNE 41022

Stucco, quality standard — UNE 41023

Poland (PKN)

Specification for testing plaster — PN B-04360

3 standards for cement — PN B-02780, -04301, -30004

2 standards for method of laying brick walls — PN B-02062/63

2 standards for solid and hollow bricks — PN B-12001/02

7 standards for aggregates — PN B-06710/14, -09715/16

693.5 CONCRETE CONSTRUCTIONS

Chile (INDITECNOR)

Twisted steel bars for reinforced concrete — INDITECNOR 2.30-83E

Use of twisted steel for reinforcing concrete — INDITECNOR 2.30-84E

695 ROOFING

Spain (IRATRA)

Black roofing paper — UNE 41026

697 HEATING AND VENTILATION

Czechoslovakia (CSN)

2 stds for two axial smock exhaust fans — CSN 122005/6

77 PHOTOGRAPHY

Spain (IRATRA)

Photographic reproduction of documents on paper — UNE 1078

A Guide for Standards Engineers and Purchasing Agents

Review by M. C. Olsen

National Cash Register Company, Dayton, Ohio; Chairman, Company Member Conference

Standardization Manual. A book of Principles and practices for Purchasing Personnel. 1955. 40 pp. 6x9 in., heavy paper cover. National Association of Purchasing Agents, 11 Park Place, New York 7, N.Y. Single copies, no charge.

The National Association of Purchasing Agents, through their National Committee on Standardization, recently prepared and issued an extremely factual reference publication. Condensed in approximately 40 pages are the elements of standardization, their definitions, principles, and practices. Publication of this booklet first came to the attention of the Company Member Conference at its recent Spring Meeting. By the interest shown there, it should prove to be a popular and useful piece of reference literature.

This *Manual* is admittedly written for those in the procurement field. Its interest and direction, however, extends beyond field limitations and should prove to be useful to those of us who practice or work with standards in their many and varied branch applications. The "Foreword" of this interesting publication notes that the contents have been gathered from the works and advice of countless authorities with extensive operating experience in procurement and standardization fields. Herein lies one of its most attractive features: a summarization of fundamentals and principles of standardization as seen through many individual experiences.

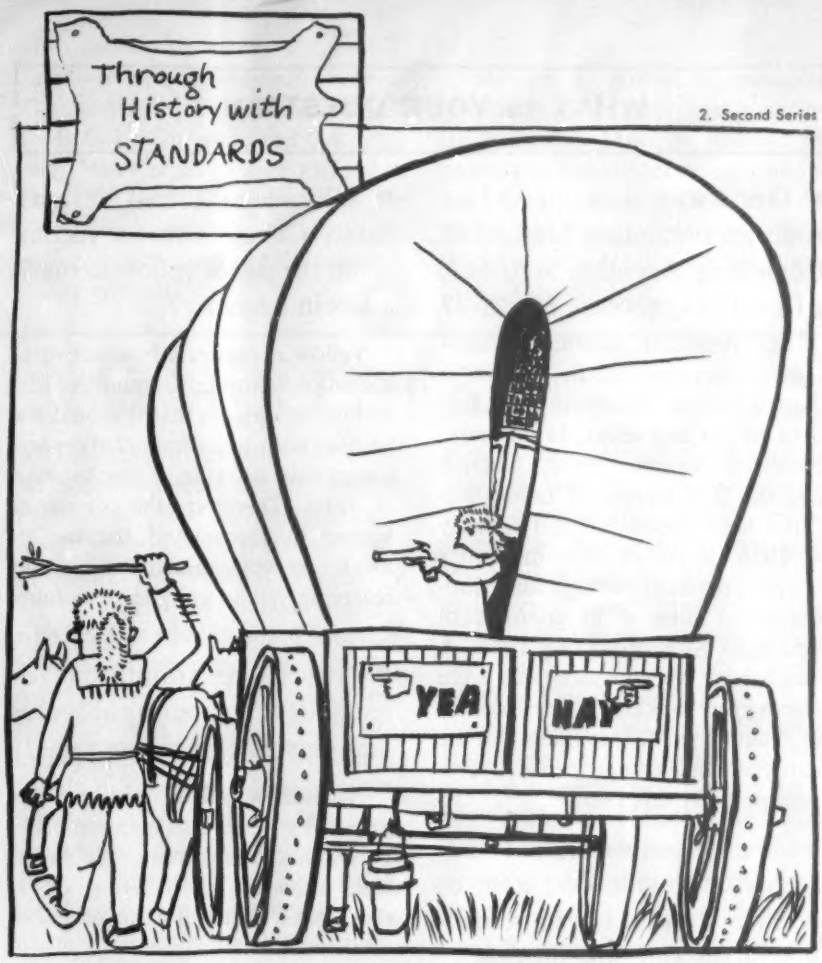
The *Manual's* treatment of the different aspects of standardization falls within logical divisions. Its scope is defined as limited to standardization for things — their size, shape, color, physical and chemical properties, and performance characteristics. Those standards dealing with operating rules and practices in the managerial standards field are not discussed specifically. Standardization principles, however, as

explained, when adapted to any one company's organization structure, apply equally well to all fields of standards.

As a reference on standardization, the *Manual's* breakdown of subject matter in areas and order of interest is particularly helpful. It starts with basic facts and definitions and explores such questions as "What is a standard?" or "What is standardization?" Steps are outlined for starting a standardization program within a company, stressing facts of value, such as the potential savings inherent in a standards program and the prime importance of top management backing the program. These, as noted, are the critical steps that affect the ease or difficulty of putting standards to work in any company. Check your concept of the general areas of potential materials standardization with those suggested in this *Manual*. Its specific detail in materials areas probably will remind you of things planned but perhaps put aside.

The Purchasing Agent and his part in standardization has been a matter of much serious and perhaps not so serious discussion. Too often standards are thought of entirely as an engineering matter. Procurement, as noted, has many opportunities for applying standards in nontechnical areas. This possibility is sometimes overlooked. Newcomers to standardization as well as established standards groups should benefit from the clearly stated working relation of the National Association of Purchasing Agents and the American Standards Association in organizing their common interests in the various fields of standardization. Added help comes through the *Manual's* listing of sources of nationally recognized standards and standardizing information.

This *Manual* has a final twist; no ending. This pleased the reviewer, and probably others will feel the same way. The final pages list reference articles published on standardization, leaving room for additions. These can form your basic reference file while you carry on the *Manual's* purpose by enlarging your file as articles appear.



We drive on the right side of the road today because of certain standards laid down by a Pennsylvania wagon maker almost 200 years ago.

The time was Colonial America and the place was the Conestoga Valley at Lancaster. Here one of the great land vehicles of history was invented and produced—the red-and-blue, four-mile-an-hour Conestoga Wagon. (The same small community developed the long-barreled Pennsylvania rifle.)

Wagons had been built before, but some unknown Lancastrian genius developed two radical departures: the wide iron wheel rims, which enabled the wagon to travel over soft ground; and the deep dip in the wagon bed, which kept loads from shifting on the steepest mountains.

The wagon-maker standardized on other features as well. He placed an arched set of four to eight bells on the lead horse on the "Haw" side. He put the brake and the sliding "lazy board" on the left side. As a result, the wagoner rode the "Gee" horse, walked by the brake on the left side of the wagon, and rode on the lazy board, also on the left. And so America drives on the right side of the road today. So do most other countries in Europe except England. In Sweden, a government commission recommended in 1955 that that country change from a left-hand to a right-hand traffic system.

Standards are an increasingly important part of traffic control and safety today. Of the 160-odd American Safety Standards, four are currently in national acceptance and use in the field of traffic. They are: Uniform Traffic Control Devices for Streets and Highways; Safety Code for Safety Glazing Materials for Glazing Motor Vehicles Operating on Land Highways; Inspection Requirements for Motor Vehicles; and Railroad Highway Grade Crossing Protection.

Many safety engineers believe that more national standards of this kind are needed to cut down traffic accidents, which have now become our tenth leading cause of death. A few of the important areas where national standards might be developed are: uniform lighting at rear of vehicles; dimensions and letters of license plates; tests for intoxication; traffic regulation (rules of the road); specification for school buses; standards for driver education; highway structural standards; and signals of police officers in directing traffic.

WHAT IS YOUR QUESTION ?

• On what date did the American Standard Method of Compiling Accident Statistics, Z16.1-1954, become effective?

The American Standards Association does not usually indicate a date when an American Standard is to be put into effect. In this case, both the National Safety Council and the U.S. Bureau of Labor Statistics have announced that January 1, 1955, is the effective date after which statistical information submitted to them shall conform to American Standard Z16.1-1954. A number of trade associations have also agreed to adopt this revision as of January 1, 1955, in order that the national statistics may be on a comparable basis this year.

• Are there any standards that recognize ductile cast iron, or nodular iron for use in producing valves and pipe fittings?

The industry is interested in this material and has made some valves and fittings of nodular iron but its use has not reached the point where it can be considered as a standard material. The American Society for Testing Materials has a committee on the subject and a tentative specification has been published identified as A339-51T Nodular Iron Castings.

• Why does the American Safety Color Code not recommend the use of yellow to mark aisles in a factory?

Yellow is particularly effective as a caution warning. Committee Z53 was of the opinion that it should not be used both to indicate caution and for routine marking of the location of aisles. Therefore, the committee agreed to recommend the use of black and white to mark aisles, thus reserving yellow to indicate caution.

• Are there standards for methods of computing absences and personnel turnover rates?

No such standards have been approved by ASA. This question probably should be referred to the American Statistical Association or to the United States Bureau of Labor Statistics.

• Does ASA have publications pertaining to water analysis issued by any South American standards body?

There is a reference to water analysis in the list of publications issued by the Instituto de Pesquisar Tecnologicas de São Paulo, Brazil, The standards are 61, 104, and 105.

International Organization for Standardization

Technical Committee Meetings Scheduled

Date, 1955	*Place*	*TC No.*	*Title*
September 1-6	Berne	IEC/TC 29	Electro-acoustics
September 7-9	Berne	ISO/TC 43	Acoustics
September 5-9	Dusseldorf	ISO/TC 45	Rubber
September 15-17	Brussels	ISO/TC 37	Terminology (principles and coordination)
September 28-30	London	ISO/TC 25	Cast iron
October 24-27	Paris	ISO/TC 29	Small tools
November 28 - December 2	London	ISO/TC 6/SC 1	Paper nomenclature-terminology-substances
December 6-9	The Hague	IEC/TC 18	Electrical installations on ships

Rufus E. Zimmerman

Rufus E. Zimmerman, retired vice-president of the U.S. Steel Company and formerly president of the American Standards Association, died June 21 at the age of 68. Mr Zimmerman had spent a great deal of his time during the past year making speeches on standardization before groups of university undergraduates as a memorial to Dr P. G. Agnew. He was president of ASA for three terms, from 1941-1943 after having served for the preceding two years as vice-president. He had been named as a member of ASA's Board of Directors by the American Iron and Steel Institute in 1937.

Mr Zimmerman was well known both in industry and education. He had been a member of the Metallurgical Advisory Board; the Carnegie Institute of Technology; Trustee of Hood College; and Member of the Corporation of Massachusetts Institute of Technology. He started his career as instructor of physical chemistry at MIT in 1911.

In 1914 he began the work that he continued throughout his career—research in the steel industry. At that time he joined the American Sheet and Tin Plate Company, which later became part of the U.S. Steel Company. Among his outstanding accomplishments were the devising of methods to refine low-grade taconite ores, development of techniques of ship welding, finding uses for steel mill wastes, and development of electrolytic tinplate.

With the formation on January 1, 1938, of the U.S. Steel Corporation of Delaware to supervise a consid-

erable number of the existing subsidiaries of U.S. Steel Corporation of New Jersey, Mr Zimmerman was appointed a director, member of the executive committee, and vice-president in charge of research and technology.

On January 1, 1951, Carnegie-Illinois Steel Corporation, U.S. Steel Corporation of Delaware, H. C. Frick Coke Company, and U.S. Coal and Coke Company were merged to form U.S. Steel Company, with Mr Zimmerman as vice-president, director, and chairman of the research policy committee.

He was a member of numerous technical committees and societies. In November 1946, he received the American Society for Metal's Medal for Advancement of Research. He held honorary doctorates from Franklin and Marshall College and from Thiel College.

NEWS BRIEFS

• Joseph F. Miller is the new Managing Director of the National Electrical Manufacturers Association. Mr Miller succeeds William J. Donald who retired April 30, 1955. Mr Donald had served as NEMA's Managing Director for almost exactly 21 years.

Mr Miller has been Assistant Managing Director since August 1, 1954, and has been with the Association since August 1953.

Before becoming a member of the NEMA staff, Mr Miller had been serving as Director of the Copper Division, Metals and Minerals Bureau, of the National Production Authority, Department of Commerce. Prior to assignment to the Copper Division, he had been an attorney in the Office of the NPA General Counsel, specializing as counsel for the Copper Division and the Tin, Lead and Zinc Division.

From 1942 to 1946, Mr Miller was counsel for Defense Plant Corporation, a subsidiary of the Reconstruction Finance Corporation. He resigned in order to reenter private law practice in 1946.

• Ralph J. Johnson, chief of Housing Hygiene Activities, U.S. Public Health Service, is joining the National Association of Home Builders as director of the Construction Department and the Research Institute. Mr Johnson is a member of the Construction Standards Board of the American Standards Association.

• Cyril Ainsworth, Technical Director, American Standards Association, is serving as a member of the Traffic and Transportation Conference of the National Safety Council for this year.

• The standard teaspoon defined in American Standard Z61.1-1949 is to be the basis for compounding liquid medicines, declares the *U. S. Pharmacopeia,* fifteenth revision.

"Agreement has not been reached with respect to a standard measure in connection with compounding and labeling liquid medicines," the *Pharmacopeia* points out. "For household purposes, an American Standard Teaspoon has been established by the American Standards Association as containing 4.93 ± 0.24 ml. In view of the almost universal practice of employing teaspoons ordinarily available in the household for the administration of medicine, the teaspoon may be regarded as representing 5 ml. Similarly, the dessertspoon and the tablespoon may be regarded as representing 10 ml and 15 ml, respectively."

The standard referred to is the American Standard Dimensions, Tolerances, and Terminology for Home Cooking and Baking Utensils.

• Chester M. Lewis, Chief Librarian of *The New York Times* and formerly vice-chairman of Sectional Committee PH5 on Photographic Reproduction of Documents, has been elected president of the Special Libraries Association.

• The letters "mac" no longer mean "maximum allowable concentration" according to action of the ASA Sectional Committee on Toxic Dusts and Gases, Z37. The committee has voted to change the terminology to "maximum acceptable concentration."

• The American Chemical Society has put itself on record to "continue to encourage all needed standardization in the fields of chemistry and chemical industry." In doing so it favors working through such organizations as the American Standards Association and the American Society for Testing Materials. This statement of standardization policy was voted by the Society's Council recently. The statement reads:

"The American Chemical Society should continue to encourage all needed standardization in the fields of chemistry and chemical industry. The Society should recognize, however, that except for a limited number of distinctly chemical activities such as standardization of nomenclature and atomic weights, it is better to work through agencies specifically organized for standardization work, such as the American Standards Association and the American Society for Testing Materials. The Society should neither initiate nor continue alone standardization activities which the standardization agencies can and will handle in satisfactory fashion. The Society should be represented on pertinent committees of the standardization organizations to insure and safeguard the interests of chemists and the chemical industry."

The Society is at present represented on eight committees organized under the procedure of the American Standards Association.

• "If there were any doubt that the new American National Plumbing Code would be enthusiastically put to work locally, the doubt has been dispelled," comments *The Contractor* in an editorial May 15.

Calling attention to its news story announcing the sale of more than 9000 copies of the standard since its publication early this year, the

editorial says: "A quick and overwhelming response is greeting the publication of the code. This is the proof that the prestige of the American Standards Association virtually guarantees universal acceptance of its code as a voluntary guide for the nation.

"It also shows how strongly the movement for standardization of plumbing regulations has already taken hold throughout the country. After all, the sale of over 9000 copies of the ASA code is no 90-day wonder. It reflects the tremendous interest in code modernization and standardization generated during recent years by the 'Report of the Coordinating Committee for a National Plumbing Code.' But now that the 'Report' has been adopted as the ASA code, the interest compounds.

"Again, we urge, let's exploit the authority of this new standard, to strengthen local activity everywhere."

• Word has been received from Greece that the Hellenic Committee for Standardization has again taken up its work on standards. The committee is part of the Technical Chamber of Greece (Chambre Technique de Grece). The committee not only acts as the national standards association in Greece but has been authorized to carry on correspondence with standards associations in other countries and with the International Organization for Standardization. Demètre Efstratiadis is president of the Comité Héllenique de Normalization with headquarters in Athens.

• Further international exchange of film products will be encouraged as a result of agreement on 14 proposals by delegates to the international meeting on motion pictures in June. More than 40 delegates attended the five-day meeting of ISO Technical Committee 36 at Stockholm, Sweden. Russia, Germany, France, Belgium, Czechoslovakia, Italy, the United Kingdom, Sweden, and the United States were represented.

Members of the USA delegation were Dean R. White, E.I. duPont de Nemours and Company, leader of the delegation; W. F. Kelley, Motion Picture Research Council; J. W. McNair, American Standards Association; Marion E. Russell, Eastman Kodak Company; Allen Stimson, General Electric Company; Malcolm G. Townsley, Bell & Howell Company.

A U.S. proposal for the cutting and perforating of 35mm film for use in CinemaScope was adopted.

Safety film definition and methods of testing were also agreed upon by the delegates. An international procedure for marking safety film was launched after a three-day study of methods used by the various countries.

A committee was authorized to draft an international standard on multilingual sound tracks to cover one present optical and two new magnetic tracks on a single standard release print.

Boyce Nemec, executive secretary, Society of Motion Picture and Television Engineers, who acted as secretary of the meetings, announced the appointment of seven permanent working groups on wide screen picture standards, film dimensions, screen luminance, reproduction characteristics of magnetic sound, film image area, safety film definition and marking, location and dimensions of magnetic tracks.

Axel G. Jensen, Bell Telephone Laboratories, Inc, chairman of the meetings, said in closing, "The entire success of the world market for motion pictures rests on international standards. The accomplishments of these meetings will insure the continued interchangeability of motion picture film among all nations of the world."

• The British Ministry of Supply Committee on Standardization of Engineering Products (The Lemon Committee) published its report on the need for standards and simplification in 1949. At that time the British Standards Institution made inquiries to determine where standardization was lacking but could be effective. It appeared that this applied in the case of plain bearings.

Now the British Standards Institution has announced publication of a British Standard for Plain Bearings (Metal), BS 1131:1955. The essential purpose of this standard is specification of dimensions of ranges of standard bushes, bearing half-liners, and thrust washers, so that they will be available without the delay and expense of making special tools. It is hoped that the standard will facilitate economic production by concentrating demand on these standard sizes.

The standard is published in five separate parts as follows:

Part 1 Dimensions of non-ferrous solid bushes and thrust washers
Part 2 Dimensions of wrapped bushes and thrust washers
Part 3 Dimensions of medium-walled and thick-walled bearing half-liners
Part 4 Dimensions of thin-walled bearing half-liners and thrust half-washers
Part 5 Bronze oil-retaining and thrust washers (BS 1131:1955)

Copies can be ordered through the American Standards Association.

• The Indonesian Standards Committee, which recently became a member of the International Organization for Standardization, has just published the first issue of its standards magazine. The title of the new magazine is *Industrialisasi*. Plans are to publish it as a monthly news magazine on the committee's activities.

• The Turkish Standards Institution has become the thirty-seventh member of the International Organization for Standardization. The Institution has headquarters at Ankara, Turkey. Its Secretary General is Necmi Tanyolac.

• Two American Standards in the field of photography have been adopted by the International Organization for Standardization as ISO Recommendations. ISO/R5 "Diffuse Transmission Density" is substantially identical with American Standard Z38.2.5-1946 having the same title. ISO/R6 "Method for Determining Photographic Speed and Exposure Index" is based on American Standard PH2.5-1954 and an earlier version of the same American Standard Method for Determining Photographic Speed and Exposure Index.

WHAT'S NEW ON AMERICAN STANDARD PROJECTS

Drawings and Drafting Practice, Y14—

Sponsors: American Society for Engineering Education; The American Society of Mechanical Engineers.

A tentative draft of Section 5 on Dimensioning and Notes of the Proposed American Standard Drafting Manual is being circulated to obtain comments and criticism from those interested.

"Although this report does not represent a consensus of Subcommittee 5, it is being circulated for industry comment that will be helpful in reconciling the differing viewpoints now expressed within Subcommittee 5," ASME explains.

Suggestions received will be considered for possible incorporation in a redraft to be submitted to the sectional committee.

This section deals with all aspects of the dimensioning problems faced by those preparing drawings and represents a general revision and broadening of the treatment given this subject in the present American Standard Drawings and Drafting Practice, Z14.1-1946. Of particular interest will be the coverage of positional tolerancing, tolerances of form, and their interrelationship. These subjects were given almost no consideration in the older drawing practice standards and have been a direct outgrowth of American-British-Canadian cooperation.

Copies can be obtained by those willing to review and offer comment from The American Society of Mechanical Engineers, 29 West 39 Street, New York 18, N.Y.

Comments should be sent to N. E. Brown, chairman, Subcommittee 5, care of The American Society of Mechanical Engineers. The comment period closes September 21, 1955.

John R. North

Bushings, C76—

Sponsors: American Institute of Electrical Engineers

The committee held a reorganization meeting in New York, March 23. John R. North, vice-president and chief electrical engineer of Commonwealth Associates, Inc, Jackson, Michigan, is the newly elected chairman. Gordon W. Clothier, manager, Allis-Chalmers Manufacturing Co, Milwaukee, is secretary.

Mr North has been with Commonwealth Associates since 1924 and has been chief electrical engineer since 1945. In 1949 he was appointed vice-president and in 1952 was made a member of the Board of Directors. Mr North has been a director of the American Institute of Electrical Engineers and is a member of the Society of Automotive Engineers. He has served on a number of ASA sectional committees, including those on transformers, insulators, and lightning arrestors. He has also been a member of the Standards Council for several years.

Mr Clothier has been with Allis-Chalmers since 1936. He is a member of the American Institute of Electrical Engineers and of the National Electrical Manufacturers Association and has served on ASA Sectional Committee C57 on transformers and on ASTM's D-9 Committee on Insulating Materials.

The recently approved scope of the committee's work is: "Standards and test codes for all apparatus bushings and including roof, floor and wall bushings, but not potheads for cable terminals, nor insulators for back connected disconnecting switches, nor bushings for communications equipment."

Cable potheads, which have been

Gordon W. Clothier

eliminated from this scope, are being handled by Sectional Committee C8 on Wires and Cables. T. F. Brandt, Ohio Brass Company, has been named liaison representative with committee C8 in order to maintain effective coordination.

AMERICAN STANDARDS

Status as of June 28, 1955

Building

In Standards Board—

Building Code Requirements for Minimum Design Loads in Buildings and Other Structures, A58.1 (Revision of A58.1-1945)

Sponsor: National Bureau of Standards

Chemical Industry

Project Initiated—

Centrifugal Pumps for Chemical Industry Use

Requested by: Chemical Industry Advisory Board

Electrical

American Standards Published—

Asbestos, Asbestos-Varnished Cloth, and Asbestos-Thermoplastic Insulated Wires and Cables, C8.36-1955 (NEMA WC1-1955) $3.00

Covers construction, tests and general provisions for subject wires and cables used for the transmission and distribution of electrical energy.

Wet Process Porcelain Insulators, Spool Type, C29.3-1955 (EEI TDJ-53; NEMA 141-1952) $0.50

Wet Process Porcelain Insulators, Strain Type, C29.4-1955 (EEI TDJ-54; NEMA 142-1952) $0.50

Wet Process Porcelain Insulators, Low- and Medium-voltage Pin Type, C29.5-1955 (EEI TDJ-55; NEMA 143-1952) $0.50

Wet Process Porcelain Insulators, High-Voltage Pin Type, C29.6-1955 (EEI TDJ-56; NEMA 144-1952) $0.50

Wet Process Porcelain Insulators, High-voltage Line-post Type, C29.7-1955 (EEI TDJ-57; NEMA 145-1952) $0.50

Sponsor: Electrical Standards Board

In Board of Review—

Computing Food-storage Volume and Shelf Area of Automatic Household Refrigerators, Method of, B38.1; NEMA HR 1 (Revision of B38.1-1944)

Sponsors: American Society of Refrigerating Engineers; U.S. Department of Agriculture, Home Economics Research Branch

In Standards Board—

Terms for Audio Techniques, Definitions of, C16.24; 54 IRE 3.S1

Sponsor: Institute of Radio Engineers

Terms of Electron Tubes, Definitions of, C60.9

Legend

Standards Council—Approval of Standards Council is final approval as American Standard; usually requires 4 weeks.

Board of Review—Acts for Standards Council and gives final approval as American Standards; action usually requires 2 weeks.

Standards Boards—Approve standards to send to Standards Council or Board of Review for final action; approval by standards boards usually takes 4 weeks.

Terms of Magnetrons, Definitions of, C60.10

Terms of Gas-Filled Radiation Counter Tubes, Definitions of, C60.12

Sponsor: Joint Electron Tube Engineering Council

Standard Submitted—

Electric Railway Control Apparatus, C48 (Revision of C48-1931)

Sponsor: American Institute of Electrical Engineers

Materials and Testing

In Standards Board—

Nickel Seamless Pipe and Tubing, Specifications for, ASTM B161-49T; ASA H34.1

Nickel-Copper Alloy Seamless Pipe and Tubing, Specifications for, ASTM B165-49T; ASA H34.2

Nickel-Chromium-Iron Alloy Seamless Pipe and Tubing, ASTM B167-49T; ASA H34.3

Hardness Conversion Table for Cartridge Brass (Relationship between Diamond Pyramid Hardness, Rockwell Hardness, and Brinell Hardness), ASTM E33-42; ASA Z76.1

Hardness Conversion Tables for Steel (Relationship between Diamond Pyramid Hardness, Rockwell Hardness, and Brinell Hardness), ASTM E48-43T; ASA Z76.2

Hardness Conversion Table for Nickel and High-Nickel Alloys (Relationship between Diamond Pyramid Hardness, Brinell Hardness, and Rockwell Hardness), ASTM E93-52; ASA Z76.3

Analysis of Natural Gases for the Volumetric-Chemical Method, Method for, ASTM D1136-53; ASA Z77.1

Analysis of Natural Gases and Related Types of Gaseous Mixtures by the Mass Spectrometer, Method for, ASTM D1137-53; ASA Z77.2

Test for Water Vapor Content of Gaseous Fuels by Measurement of Dew-Point Temperature, Method of, ASTM D1142-53; ASA Z77.3

Sampling Natural Gas, Method of, ASTM D1145-53; ASA Z77.4

Sponsor: American Society for Testing Materials

Mechanical

American Standard Published—

Ring-Joint Gaskets and Grooves for Steel Pipe Flanges, B16.20-1955 (Revision of B16.20-1952) $1.00

Sponsors: American Society of Mechanical Engineers; Heating, Piping and Air Conditioning Contractors Association; Manufacturers Standardization Society of the Valve and Fittings Industry

In Standards Board—

Code for Pressure Piping, B31.1 (Revision of B31.1-1951)

Sponsor: American Society of Mechanical Engineers

In Board of Review—

System for Straight Bevel Gears, B6.13

Sponsors: American Gear Manufacturers Association; American Society of Mechanical Engineers

Mining

American Standard Approved—

Quarry Safety Code, M28.1-1955

Sponsor: National Safety Council

Petroleum Products and Lubricants

American Standards Published—

Test for Distillation of Gasoline, Naphtha, Kerosine, and Similar Petroleum Products, Method of, ASTM D86-54; ASA Z11.10-1955 (Revision of ASTM D86-53; ASA Z11.10-1953) $0.30

Test for Distillation of Natural Gasoline, Method of, ASTM D216-54; ASA Z11.11-1955 (Revision of ASTM D216-53; ASA Z11.11-1953) $0.30

Test for Distillation of Gas Oil and Similar Distillate Fuel Oils, Method of, ASTM D158-54; ASA Z11.26-1955 (Revision of ASTM D158-53; ASA Z11.26-1953) $0.30

Test for API Gravity of Petroleum and Its Products, Method of (Hydrometer Method), ASTM D287-54; ASA Z11.31-1955 (Revision of ASTM D287-52; ASA Z11.31-1952) $0.30

Test for Neutralization Value (Acid and Base Numbers) by Potentiometric Titration, Method of, ASTM D664-54; ASA Z11.59-1955 (Revision of ASTM D664-52; ASA Z11.59-1952) $0.30

Test for Saponification Number of Petroleum Products by Potentiometric Titration, Method of, ASTM D939-54; ASA Z11.67-1955 (Revision of ASTM D939-52; ASA Z11.67-1952) $0.30

Test for Specific Gravity of Petroleum and Its Products (Hydrometer Method), Method of, ASTM D1298-54; ASA Z11.84-1955 $0.30

Sponsor: American Society for Testing Materials

Photography

In Standards Board—

Dimensions for 70mm Perforated Film for Cameras Other Than Motion Picture Cameras, PH1.20

Focal Length of Lenses: Markings, PH3.13 (Revision of Z38.4.4-1942)

Sponsor: Photographic Standards Board

16mm Film Perforated One Edge, Usage in Camera, PH22.15 (Revision of Z22.15-1946)

16mm Film Perforated One Edge, Usage in Projector, PH22.16 (Revision of Z22.16-1947)

35mm 3-Track Magnetic Flutter Test Film, PH22.98

Sponsor: Society of Motion Picture and Television Engineers

Safety

American Standard Published—

Sanitation in Places of Employment, Minimum Requirements for, Z4.1-1955 (Revision of Z4.1-1935) $0.50

Sponsor: Public Health Service

Requirements concerning sanitation in permanent places of employment: including drinking water, toilet facilities, washing facilities, change rooms, retiring rooms for women, and lunch rooms.

American Standards Approved—

Safety Code for Elevators, Dumbwaiters, and Escalators, A17.1-1955 (Revision of A17.1-1937)

Sponsors: American Institute of Architects; National Bureau of Standards; American Society of Mechanical Engineers

Manual on Uniform Traffic Control Devices for Streets and Highways, D6.1-1955 (Revision of D6.1-1948)

Sponsors: American Association of State Highway Officials; Institute of Traffic Engineers; National Conference on Street and Highway Safety

In Board of Review—

Prevention of Dust Explosions in Flour and Feed Mills, Code for, Z12.3 (Revision of Z12.3-1953)

Prevention of Dust Explosions in Terminal Grain Elevators, Code for, Z12.4 (Revision of Z12.4-1953)

Prevention of Dust Ignitions in Country Grain Elevators, Code for, Z12.13 (Revision of Z12.13-1953)

Sponsor: National Fire Protection Association

STANDARDS OUTLOOK

by LEO B. MOORE

Managerial Review

The eternal problem of gaining and retaining top management support of a company standardization program comes sharply into focus at this time of the year. This is budget time for all those companies that operate on a fiscal year beginning July first. And the budget is one clear indicator of support.

Standards engineers have spent many a sleepless night wondering about the issue of standards support. The nights have extended into weeks and months—yes, even years. Through the coming years, they will experiment with this technique and that, try this approach and that, and hope with this scheme and that. Support seems to be an occupational preoccupation for standards engineers and every idea that seems worth trying gets its chance.

The educational world uses a device referred to as the "visiting committee." This committee generally is comprised of individuals who have high positions of trust and leadership in their own areas of endeavors and have the broad attitudes that make their judgment well-conceived and deeply considered. This committee is set up by the top group of the educational institution to serve as a board of review of some phase or activity of the school. In the course of its review, the committee visits the activity, sees the facilities, talks with the people involved, asks questions, raises doubts, routs out problems, and makes an evaluation. The net result is a report to the administration that includes an evaluation of the activity, an estimation of its contribution, and an indication of its future. You may rest assured that there is no experience like it, except perhaps, a suspicious wife's explorations.

This review board device is not new. It has been used for many years by the military services, by governmental agencies, and is in fact the basis for our jury system. Simply stated, we ask an impartial, yet competent, group to investigate, analyze, and decide upon some matter at issue.

Might this same notion be applied successfully to a standards program in a company? The review group appointed by top management might consist of eight or ten men from the different sections or functions of the company. They would visit the standards department, talk with the standards engineers about their projects, see the standards manuals, watch the preparation of the standards, their printing, and dissemination, look at the facilities, listen to the problems, ask questions, and make a judgment. This evaluation would be placed in a report to top management. It should cover the present state of affairs and the possible future conditions of operation, with specific recommendations for the attainment of this hoped-for future.

Some companies have had experience with this technique in the field of operations research, and others with endeavors in the consultative management area. But the business world generally has not used it. More companies, however, are becoming convinced of the value of a periodic review of their employees, and it would not be surprising to see the same idea applied to operating areas. Would a company standards program benefit if it could be given a cold, hard look by a competent group that has the respect of management?

●

Mr Moore is Assistant Professor of Industrial Management at Massachusetts Institute of Technology where he teaches a full-term course in industrial standardization.

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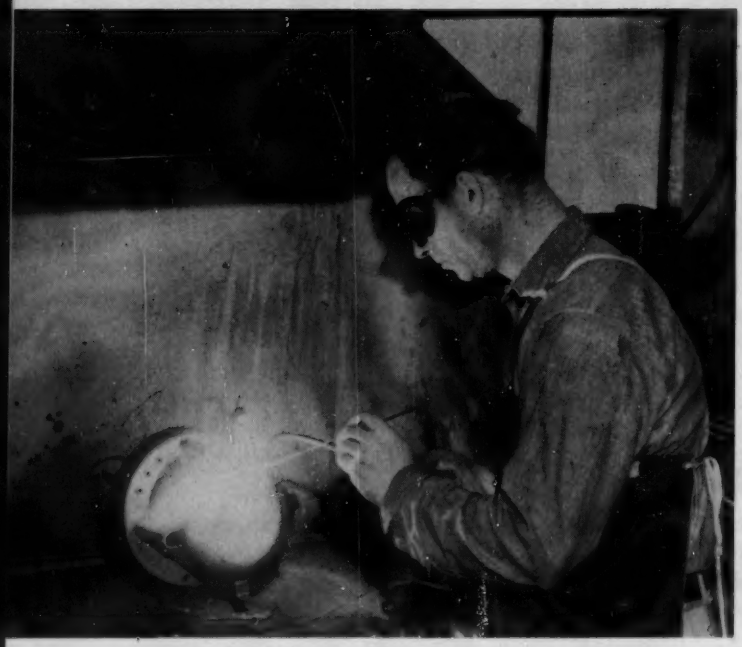

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